Report of the Crown Investments Review Commission

CROWN INVESTMENTS REVIEW COMMISSION

REPORT TO THE GOVERNMENT OF SASKATCHEWAN

CROWN INVESTMENTS REVIEW COMMISSION

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December 28, 1982

The Honourable Robert L. Andrew
Minister of Finance
Legislative Building
Regina, Saskatchewan

Sir:

In keeping with His Honour, the Lieutenant Governor's Order-in-Council 906/82, I have the honour to submit the final report of the Crown Investments Review Commission. With your indulgence, I would like to make several comments and observations in relation to this report.

Firstly, I think it is of some importance to recognize the magnitude and possible scope that our inquiry might have taken within the terms of reference assigned to the commission. As we make clear in our report, the approach which was eventually developed and adopted was agreed to be the most appropriate in the circumstances. In particular, the commission perceived a need to complete its mission in the shortest period of time consistent with a full assessment of the underlying factors and theoretical basis of public sector business and investment.

Secondly, and of equal importance, the commission recognizes the invaluable assistance and co-operation it has received from many individuals and groups, both within and without the public service of this province, which has made our task less onerous and has enabled this report to be produced on a timely basis.

Thirdly, we wish to recognize the contribution made by all those who responded to the commission's invitation to provide written or personal submissions relative to our inquiry which were characterized by a common concern for the future well-being of this province and the people of Saskatchewan.

Lastly, all members of the commission have asked me to express the hope that this report will assist you and your government in developing policies which will enhance the Crown corporation sector of our provincial economy in such a way as to achieve true benefits for all Saskatchewan people.

Respectfully submitted,

CROWN INVESTMENTS REVIEW COMMISSION

W. Wolff
Chairman

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INTRODUCTION

The commission conducted its review of Crown investments under the premise that its mandate was to consider and report upon the Crown corporation sector, rather than upon individual Crown corporations. This report reflects the outcome of the commission's analyses, interviews, consideration of written submissions, and deliberations.

Four key issues emerged repeatedly and occupied center stage in the commission's deliberations. Discussion and comment related to these major issues are evident in several sections of the report. The four specific issues which form the core of the report are:

- A functional classification of Crown corporations, the purpose of which is to come to terms with the mandate and objectives of each corporation;
- The overall relationship between groups of Crown corporations, on the one hand, and the Government of Saskatchewan on the other hand. One important aspect of this issue is the relationship between ministers of the Crown and the Crown corporation sector. Another important aspect is the role and composition of boards of directors;
- The financing arrangements of the Crown corporation sector, including the roles of a Crown corporations holding company and the Department of Finance;
- The degree and form of accountability of Crown corporations to the people of Saskatchewan through the government and the legislature.

The commission's recommendations flow from its interpretation of the mandate, its review of the Crown corporation sector as of March 31, 1982, its conceptual framework , and its intent to focus on major issues. Many other recommendations could be made, but the commission is convinced that reform of the Crown corporation sector depends clearly and directly upon the acceptance and implementation of its fundamental recommendations. The commission believes that the implementation of these recommendations would serve the people of Saskatchewan well for many years to come, regardless of the political persuasion of the party in power.

In formulating its recommendations, the commission has deliberately refrained from dealing with excessive detail or peripheral matters, concentrating instead on what are considered the essential areas of concern. In writing this report, the commission has attempted to be as brief as may be consistent with the goal of expressing its views as clearly as possible. The commission is in possession of a great mass of material, the inclusion or exclusion of which was considered a matter of judgement on the basis of both brevity and clarity.

SCOPE AND METHODOLOGY

The scope of the commission's review was determined by the terms of reference contained in Order-in-Council 906/82 dated June 9, 1982 (Appendix A). The commission interpreted its mandate as a review of the Saskatchewan Crown corporation sector, which consists of twenty-four corporations:

- Agricultural Development Corporation of Saskatchewan
- Crown Investments Corporation of Saskatchewan (CIC)
- Municipal Financing Corporation of Saskatchewan
- Potash Corporation of Saskatchewan (PCS)
- Saskatchewan Computer Utility Corporation
- Saskatchewan Development Fund Corporation
- Saskatchewan Economic Development Corporation (SEDCO)
- Saskatchewan Forest Products Corporation
- Saskatchewan Fur Marketing Service
- Saskatchewan Government Insurance (SGI)
- Saskatchewan Government Printing Company
- Saskatchewan Minerals
- Saskatchewan Mining Development Corporation (SMDC)
- Saskatchewan Oil and Gas Corporation (Saskoil)
- Saskatchewan Power Corporation (SPC)
- Saskatchewan Telecommunications (Sask Tel)
- Saskatchewan Transportation Company (STC)
- Saskatchewan Water Supply Board

The corporations listed above are closely linked with CIC and generally referred to as "CIC corporations". The remaining six corporations are referred to as "Treasury Board corporations" or "other corporations":

- FarmStart
- Saskatchewan Crop Insurance Corporation
- Saskatchewan Educational Communications Corporation
- Saskatchewan Grain Car Corporation
- Saskatchewan Housing Corporation
- The Saskatchewan Land Bank Commission

The commission also conducted a more limited review of Prince Albert Pulp Company Ltd. (PAPCO) and CIC Industrial Interests Inc., both of which are wholly owned subsidiaries of CIC. In addition, a limited review was given to investments in which CIC has a financial interest through CIC Industrial Interests Inc. These investments include:

- Agra Industries Limited (17% interest)
- Cablecom Corporation (60%)
- Cornwall Centre (mortgage loans)
- Intercontinental Packers Limited (45%)
- Interprovincial Steel and Pipe Corporation Ltd. (20%)
- NABU Manufacturing Corporation (9%)

- Prairie Malt (Canada) Ltd. (91%)
- SED Systems Inc. (25%)

Loan and equity investments held by SEDCO were noted but not reviewed.

The commission surveyed the goals and objectives of the Crown corporations, examined the administrative and financial structures linking them with the government, and considered the overall impact of the corporations on Saskatchewan, but did not conduct performance evaluations of any corporation.

The commission reviewed the relevant laws, regulations, published annual reports (1976-1982), Public Accounts of Saskatchewan (1976-1982), and related unpublished material. In addition, commissioners interviewed the chief executive officer or acting officer (CEO) of each Crown corporation and used a series of newspaper advertisements inviting submissions from the public on the matters under review.

The review of operating objectives and administrative structure concentrated on the system that was in place on March 31, 1982. The financial review covered the period from April 1, 1975, to March 31, 1982, which was a period of significant growth in the Crown corporation sector and includes the most recent data for which financial reports are available.

The conceptual part of the commission's work included an analysis of the rationales for public enterprise (Appendix C) and a search of published material dealing with Crown corporations and public enterprise in general. A selected bibliography of this material is included in Appendix D.

The results of the review are described and discussed in the remainder of this section of the report. The conceptual framework is discussed in the following section, and the concluding section states the commission's recommendations.

REVIEW RESULTS

Operating objectives

In reviewing the operating objectives of Crown corporations, the commission set out to identify the documented objectives, and to determine how they were interpreted by chief executive officers. The commission frequently found the documented objectives of Crown corporations to be inappropriately defined. Consequently, there is uncertainty about the specific purposes and goals of particular corporations.

The lack of clarity in the mandates has made it possible — indeed necessary — for chief executive officers to interpret the mandates of their corporations in terms of corporate objectives. The commission's review suggests that, in some cases, the mandates may have been interpreted too broadly.

The lack of clearly defined goals creates a number of problems, including the following:

- It is difficult to determine whether Crown corporations are meeting their goals in view of uncertainty as to the true measure of success;
- Chief executive officers have to rely on interpretations of statutes, or information passed on by their predecessors or others, to determine the goals of their corporations and the types of activities in which the corporations should or should not get involved;
- Subject to any constraints imposed by CIC, CEO's may lead a Crown corporation into activities which may be precluded under a precise interpretation of its mandate.

As a result, senior Crown corporation officers can have broad powers in influencing the direction of Saskatchewan's Crown corporations and, to some extent, the future of the province. The normal function of boards of directors is to

establish and monitor the authority of senior managers, within the corporation's mandate. Without clear corporate objectives, the basic information needed to offer such guidance is lacking.

In addition, inappropriately documented operating objectives can result in Crown corporations and government departments competing for the same goals, if not suitably co-ordinated. For example, SEDCO management states that SEDCO has a major role to play in attracting new industry to Saskatchewan. At the same time, CIC and the Department of Industry and Commerce considered this task to be within their assigned responsibilities.

The concerns set out above are supported by the commission's review of Crown corporations' documented operating objectives and interpretations of those objectives as revealed in interviews with senior officers. The commission did not, however, attempt to determine whether objectives were being met, because such an assessment would require performance evaluations which were not within the commission's scope.

The operating objectives of Saskatchewan's Crown corporations cover a wide field, including:

- providing goods and services at reasonable cost
- creating and providing employment opportunities
- earning a return on investment
- developing the province's natural resources
- developing the province's economy
- creating investment opportunities
- administering agricultural and social programs

These objectives are broad statements subject to different interpretations. They can also be in conflict. For example, service at reasonable cost may not produce satisfactory investment returns in the commercially accepted sense.

An important objective for participation in private sector commercial businesses seems to be to provide or retain employment in Saskatchewan, rather than to maximize the return on the investment. For example, PAPCO was formed primarily for that purpose, and the commission has been told that the creation of head office jobs in this province was among the objectives pursued by PCS and SMDC. The commission is concerned, however, about the apparent absence of evaluation techniques that might relate the capital opportunity cost to the employment benefit. For example, if one were to assume that the province's investment in PCS had the effect of creating an additional — say — 300 jobs that would otherwise not have existed in this province, the cost of creating these jobs may be measured in terms of the loss of the opportunity to deploy those funds elsewhere. If, instead, the province had chosen to invest an equivalent sum in the capital markets, even modest rates of return would have produced enough income to pay salaries to as many as 2,000 persons.

Other difficulties are encountered in cases where corporations have dual or multiple objectives which may be incompatible. For example, SGI has as its mandate the administration of the province's compulsory automobile accident insurance fund. At the same time, the corporation carries on a general insurance business. The difficulties in achieving satisfactory results, or indeed even measuring them, in each of these two diverse activities were demonstrated during the review. Similarly, it is not clear whether STC's objective of supplying transportation services at reasonable cost is to be achieved in addition to earning a return on the province's investment, or whether its social orientation should exclude such financial considerations. Other examples of corporations which, in the view of the commission, have multiple and conflicting mandates include SEDCO and Saskatchewan Housing Corporation.

The commission recognizes the difficulties in setting and monitoring operating objectives, but considers it to be critical that corporate boards and officers be guided appropriately in the future.

Administrative structure

The commission interpreted "administrative structure" as the relationship among the Crown corporations and between the corporations and the provincial government. It did not concern itself with the internal management structures of individual corporations.

The broad structures, as defined above, are complex, and they exhibit a potential for significant political influence on the objectives and operations of the Crown corporations. Moreover, the authority of the various participants is not entirely clear. The commission set out to identify and describe the roles played by the participants in the decision making process.

CIC is the central repository of power in the sector, and the dominant authority among the somewhat heterogeneous group of CIC corporations identified above. According to its 1981 annual report, CIC's role is to act ". . . as a holding company for the province's commercial Crown corporations and certain other investments . . . to act as a catalyst in broadening the base of Saskatchewan's economy, to improve its stability during market and climatic fluctuations by deliberate expansion of the resource and manufacturing sectors." This mandate is perceived by the corporation's senior management as a mandate to exert strong influence over the activities of the seventeen subordinate Crown corporations. However, unlike holding companies in the private sector, CIC does not have any ownership interest, and only a limited financial interest, resulting from loans and advances to some of the CIC corporations. On the other hand, the corporation does have the legal right to receive dividends and has made it a practice to prepare a consolidated financial statement for reporting purposes.

What makes the position of CIC more powerful than any other Crown corporation, however, is the composition of its board of directors. The board members including the chairman are cabinet ministers, with the corporation's chief executive officer as the only non-ministerial member.

Under these circumstances, few decisions of any consequence are made at the board or management level of CIC that do not bear the stamp of political approval by the cabinet committee serving as the corporation's directors. Indeed, the commission's review also revealed that many issues of lesser significance, including day-to-day operational matters, are dealt with at that level. The functions of this cabinet committee, therefore, range from political judgements to management decisions, covering policy determination, major investment initiatives, personnel questions, and indeed the entire spectrum of Crown corporation activities. This direct line of authority is shown as symbol [1] on the organization chart included herewith as Table 1.

In addition to cabinet and CIC, the other major participants in the administrative structure are the CIC corporations themselves as well as the other (Treasury Board) corporations. Furthermore, the Department of Finance plays an important role as the agency with overall responsibility for the province's financial affairs.

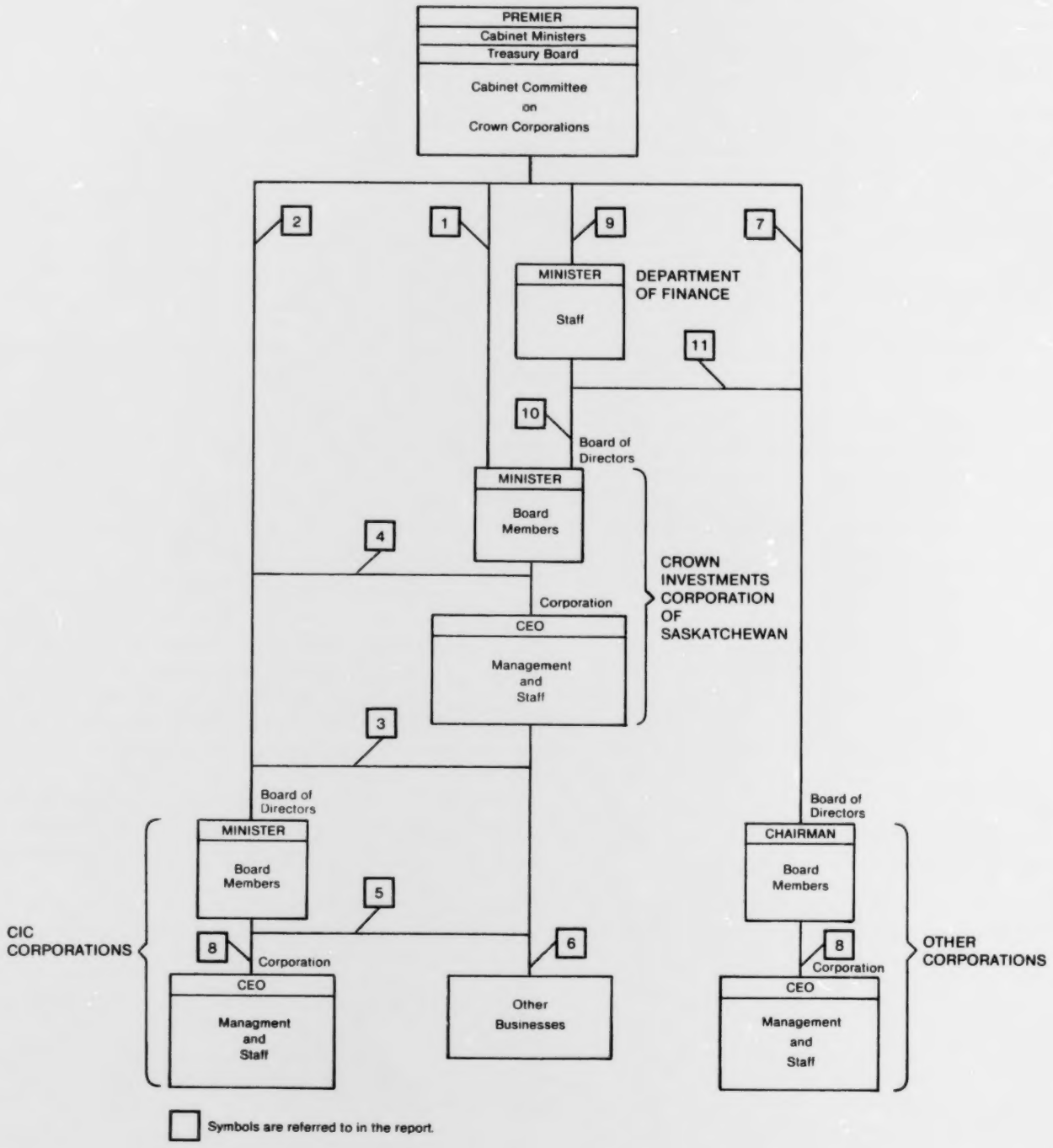
The boards of directors of the seventeen CIC corporations, while in their majority made up of members of the general public appointed by cabinet, are generally chaired by cabinet ministers. In addition, it is customary for at least one CIC staff member to serve on these boards, often as corporate secretary. These lines of authority, identified in Table 1 with symbols [2] and [3] respectively, can limit the effectiveness of the boards of directors. The observation of one CEO illustrates the point: "I thought . . . got the impression in fact, that CIC was running the show and our board was required to rubberstamp their actions, which, I guess, from my perspective, if it's merely an advisory board we should call it that, not a board of directors. If it's really a board of directors, they should be directing us."

Furthermore, the traditional functions of the boards of these corporations, as well as the effectiveness of their management, are curtailed because their CEO's are customarily not members of their boards of directors. Compared with private sector corporate practice, this arrangement is unusual, as noted by one CEO: "I'm there, at board meetings, ex-officio, of course. But the point is, they do have in-camera sessions and so on, from time to time and the thing is that, theoretically, there shouldn't be an in-camera session ever, unless they are discussing your performance because what

TABLE 1

PROVINCE OF SASKATCHEWAN
ADMINISTRATIVE STRUCTURE OF CROWN CORPORATIONS

ORGANIZATION CHART



else would the board possibly want to talk about without the CEO? I know that my private sector counterparts, and I know lots of them, wouldn't put up with it for a minute."

A further line of authority, identified as [4] on Table 1, relates to decisions by the CIC board, upon request from the boards of its subordinate corporations, regarding such matters as review of goals and objectives, capital spending, the role of the corporations in provincial economic development, board and CEO appointments, rate changes and long range planning. Furthermore, CIC management and staff provide professional, administrative, and technical assistance when required, and review capital and operating budgets, depicted by symbol [5]. Finally, CIC administers its other business interests, including its two subsidiaries, by providing representation on boards of directors and by giving direction to these private corporations on matters of provincial economic development, indicated by symbol [6].

With respect to the other (Treasury Board) corporations, authority rests with the chairmen, most of whom are cabinet ministers. They provide direction on social or agricultural policy to be carried out, goals and objectives, capital budgets, board and CEO appointments and so forth, indicated by symbol [7].

In addition to the lines of authority described so far, the directors of each Crown corporation carry out some of the more traditional functions depicted by symbol [8], namely decisions on goals and objectives, annual plans and budgets, rate changes, personnel appointments, corporate policy issues, management performance reviews and similar matters. There is a degree of duplication with line [5] previously described.

The position of the Department of Finance is illustrated by symbols [9], [10] and [11], suggesting its function on the financial side of the Crown corporation sector, with a direct link to cabinet through the Minister of Finance.

Among the deficiencies inherent in the administrative structure described above is the relatively heavy emphasis on political control mechanisms at the expense of corporate autonomy. The boards of directors of CIC corporations are subject to political influence from several sources: from the chairmen, who are cabinet ministers; from the CIC board sitting as a cabinet committee; and from the CIC management personnel appointed to the boards. Put simply, no Crown corporation escapes extensive and continuous political guidance.

On the other hand, the commission noted that the commercial aspects of the administration of some Crown corporations, notably the CIC corporations, are somewhat under-emphasized. Reference is made above to the limited authority of many boards. In addition, many chief executive officers lack industry-specific experience, several having been recruited from the ranks of government employees. There is also a lack of common commercial techniques such as return-on-investment calculations, formulation of dividend policy, and frequent publication of financial reports. This latter area is of particular concern to the commission in view of such acquisitions as, for example, an interest in NABU Manufacturing Corporation, an Ontario computer business, without much publicity surrounding it. Similarly, why does a CIC subsidiary hold the Cornwall Centre mortgage loan, or a 60% interest in Cablecom Corporation? Perhaps the interest rate on Cornwall Centre is too low to attract the province's pension funds, and perhaps the Cablecom investment was a public policy initiative towards control of cable broadcasting. In any event, these illustrations raise a number of questions regarding the expenditure of public funds. As one CEO said of the CIC subsidiary: "... it's a convenient place to put something."

Financing arrangements

The commission's aim in this segment of the review was to determine the type of investments that have been made, the magnitude of the capital invested and its growth in recent years, the sources of financing employed, and the province's dividend receipts from its Crown corporations. Although reference will be made to the equity underlying the province's investment in some corporations, the primary orientation is determined by the historical cost method of accounting for investments, and no reference is made to the market value of any investment. Simply stated, this "cost" or "cash" basis of accounting reflects the cumulative amount of cash disbursed into the Crown corporation sector, according to the Public Accounts of Saskatchewan.

Similarly, these accounts reflect only the cash dividends received by the provincial treasury and not the dividends paid by one Crown corporation to another or the earnings retained among them. For provincial budget purposes, only cash dividends can be considered as revenue. For example, the earnings retained by PCS are of no direct significance to the provincial budgetary process until actually paid to the province either directly or indirectly through CIC.

On the basis stated above, the capital investment in all Crown corporations is $3,837 million (Table 2). Of this amount, $2,825 million was borrowed through the Consolidated Fund on the credit of the province and $1,012 million came from government revenues. The largest capital investments have been made in five corporations engaged primarily in utilities and natural resources: SPC ($1,101 million), PCS ($577 million), Sask Tel ($520 million), CIC ($491 million) and SMDC ($369 million), together accounting for almost 80% of total capital investment (Table 2).

Almost 84% of the province's net investment (that is, net of related debt) is found in three corporations: PCS ($452 million), SMDC ($219 million) and CIC ($179 million) (Table 2).

Of the 24 Crown corporations reviewed by the commission, 13 received funds directly from the province, including CIC. This latter corporation in turn advanced some of those funds, together with funds borrowed on its own account, to four of the same 13 corporations, as well as to several others, including its two subsidiaries. In this fashion, CIC acts as exclusive or joint financier for such corporations as PAPCO ($233 million), CIC Industrial Interests Inc. ($102 million), SEDCO ($77 million), SGI ($57 million), and Saskoil ($44 million), among others.

Thus, the province provides cash advances to its corporations in a variety of ways, either from the Consolidated Fund or the Heritage Fund, either directly or via CIC. In addition, many Crown corporations borrow money on their own account from commercial sources.

Retained earnings are another source of financing, currently reported at more than $750 million, of which the largest portion relates to PCS and SPC.

Advances have been made in the form of short-term and long-term interest bearing loans and non-interest bearing "equity" advances. The province's capital investment may be analyzed accordingly:

	Consolidated Fund	Heritage Fund	Total
		($ Millions)	
Interest bearing loans	$2,911	$ 107	$3,018
Equity advances	8	811	819
Total	$2,919	$ 918	$3,837

The amount of $918 million represents approximately 30% of all Heritage Fund receipts to 1982. Most of the remainder has been transferred to the Consolidated Fund.

The terms of some of these advances are rather sophisticated. For example, the Heritage Fund advanced $55 million to the Saskatchewan Grain Car Corporation to purchase 1,000 grain cars. But because the corporation has no income, the Consolidated Fund makes a grant to the corporation every year for 30 years to repay principal and interest to the Heritage Fund. While the Heritage Fund may show some growth because of the interest it receives from the Saskatchewan Grain Car Corporation, there is no overall gain in the financial resources of the province. The interest shows up as income for the Heritage Fund but is offset as an expense in the Consolidated Fund. However, the government is able to amortize through the Saskatchewan Grain Car Corporation, the expenditure on the grain cars over a number of years rather than incur a one-time expenditure of $55 million.

TABLE 2

PROVINCE OF SASKATCHEWAN
INVESTMENT IN CROWN CORPORATIONS
MARCH 31, 1982

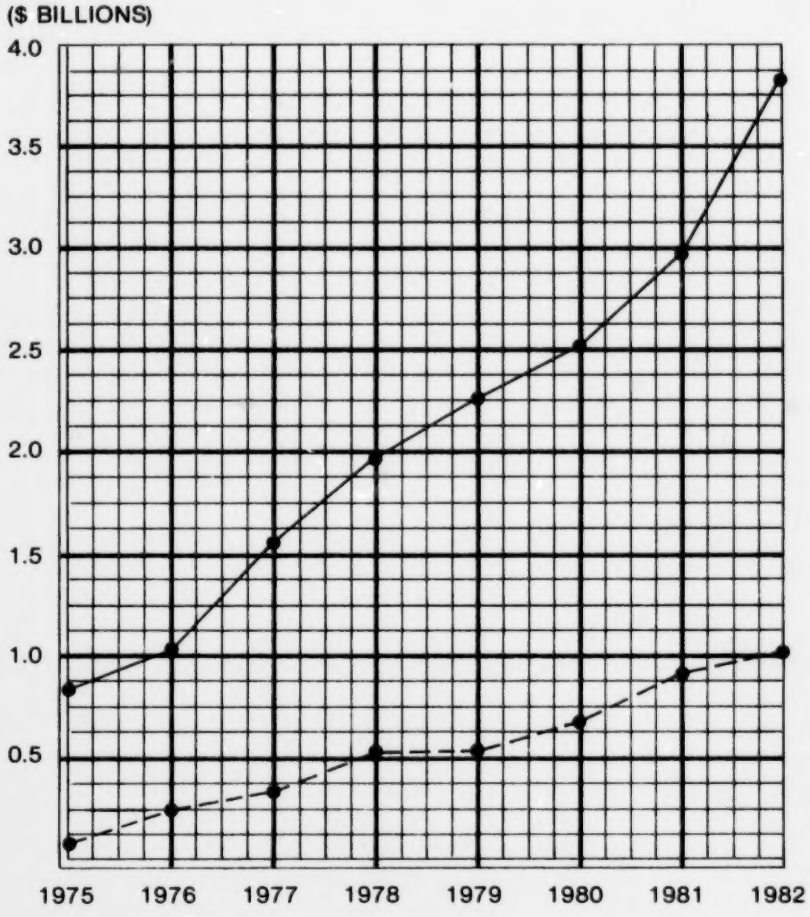
($ MILLIONS)

	CAPITAL INVESTMENT	RELATED DEBT	NET INVESTMENT
SASKATCHEWAN POWER CORPORATION	$1,101	$1,098	$ 3
POTASH CORPORATION OF SASKATCHEWAN	577	125	452
SASKATCHEWAN TELECOMMUNICATIONS	520	520	—
CROWN INVESTMENTS CORPORATION OF SASKATCHEWAN	491	312	179
SASKATCHEWAN MINING DEVELOPMENT CORPORATION	369	150	219
SASKATCHEWAN HOUSING CORPORATION	244	228	16
THE SASKATCHEWAN LAND BANK COMMISSION	175	175	—
FARMSTART	136	136	—
SASKATCHEWAN OIL AND GAS CORPORATION	88	25	63
SASKATCHEWAN GRAIN CAR CORPORATION	53	—	53
SASKATCHEWAN ECONOMIC DEVELOPMENT CORPORATION	48	48	—
MUNICIPAL FINANCING CORPORATION OF SASKATCHEWAN	27	—	27
SASKATCHEWAN WATER SUPPLY BOARD	8	8	—
TOTAL	$3,837	$2,825	$1,012

TABLE 3

PROVINCE OF SASKATCHEWAN
INVESTMENT IN CROWN CORPORATIONS

(YEARS ENDED MARCH 31)



——— CAPITAL INVESTMENT BY THE PROVINCE OF SASKATCHEWAN IN CROWN CORPORATIONS AT COST (SEE TABLE 2).

– – – – NET INVESTMENT BY THE PROVINCE OF SASKATCHEWAN IN CROWN CORPORATIONS (SEE TABLE 2).

EXCESS OF CAPITAL INVESTMENT OVER NET INVESTMENT = RELATED DEBT (SEE TABLE 2).

CIC has been financed through equity advances by the province, short-term bank financing and dividends from Crown corporations. Much of this financing has been carried out through floating rate debt, and repayment is dependent on dividends from subordinate corporations.

During the seven years under review, the province's capital investment in the Crown corporation sector rose almost five-fold from $788 million to $3,837 million, with the related debt up from $682 million to $2,825 million, and net investment at $1,012 million almost ten times what it was in 1975 (Table 3). These increases resulted primarily from utility and resource investments.

Although the Crown corporation sector reported, in the aggregate, more than $650 million in profits during the seven years ended March 31, 1982, cash dividends paid to the provincial treasury amounted to $145 million, of which $95 million was channelled into the Consolidated Fund, with the balance appearing in the Heritage Fund.

The pattern that presents itself to the commission from these arrangements indicates that steadily increasing cash contributions from provincial revenues, amounting to more than one billion dollars, were required to finance, chiefly, the acquisition and expansion of the natural resource investments. The two utility corporations, on the other hand, had their substantial capital requirements financed largely by provincial borrowings arranged through the Department of Finance. The commission understands that, as a result of a good international reputation, the Department has been able to obtain rates and terms which are usually better than those available to businesses in the private sector.

The overall dividend return, when related to the province's net investment, was clearly inadequate during the review period. On the basis of dividend receipts, it is not apparent how the citizens of this province have benefited financially from Crown investments.

SUMMARY

In summary, the operating objectives of many Crown corporations are not adequately defined. As a result, some officers and boards of directors do not have a clear understanding of the objectives of the corporations and how corporate performance should be evaluated. In addition, inadequate definition of the operating objectives can result in Crown corporations and government departments competing for the same goals, and Crown corporations assuming responsibilities which are not part of their mandates.

Crown Investments Corporation of Saskatchewan with its politically oriented board of directors has a disproportionate amount of power. CIC approval is required for most of the activity in the Crown corporation sector. As a result, CIC has significant influence over the operations of its subordinate corporations. Within the structure of the Crown corporation sector it is possible for the government to make investments to implement government policy with little public scrutiny.

Increasing amounts of public funds — currently more than one billion dollars — have been directed into Crown investments. Dividends on these investments have been minimal. Dividends paid to the province rather than profit earned within the Crown corporations is the appropriate measure of success for the people of Saskatchewan, because dividends can be used to finance other government programs or to reduce taxes. Profits which are retained by the corporations are not available for general government use and do not provide direct benefits to the people of Saskatchewan.

A CONCEPTUAL FRAMEWORK FOR CROWN INVESTMENTS

DEFINITION AND CLASSIFICATION

Crown investments may be defined as infusions of cash into Crown corporations and other business activities by the provincial government. These infusions may be identified either as loan or equity capital, although the distinction between the two forms of capital is less obvious and less precise than in the case of privately owned corporations. Decisions to acquire, retain, or dispose of Crown investments are based on both economic and political rationales; the mix of political and economic reasons varies among different Crown investments.

The commission finds it appropriate to classify Crown investments into three categories:

1. Departmental service units, in which the pursuit of net revenue is not a mandate of the unit, and which cover activities that could conceivably be performed by government line departments;
2. Commercial Crown corporations which pursue profits and are clearly competitive with private business in marketing their outputs;
3. Commercial Crown corporations in which the pursuit of profits is not a dominant part of the mandate. These are the "natural monopolies" referred to below, and are not subject to competitive pressures for the bulk of their outputs of goods and services.

Some Crown corporations do not fall easily into any of the above categories because of a lack of clarity in their mandates.

MANDATE AND OBJECTIVES[1]

The content of this sub-section is related to the phrase"... to define the objectives of Crown investments..." as stated in the terms of reference in number 2(c)(ii). The commission's interpretation of this directive is that it refers to the overall objectives of the Crown in undertaking Crown investments and not to the specific objectives of individual Crown investments; the latter are discussed in other sections of this report. The overall mandate of Crown investments has been to implement public policy goals through vehicles that were considered to be more effective than traditional line departments or other instruments of government. The rationale may reflect economic or political factors or a combination of the two. The public policy objectives are sometimes explicit and sometimes implicit in the nature of the investment. Governments have a role to play in the economy, but the usual goals of government intervention in the economy are not likely to be the same as those of non-governmental business organizations, even in the case of those Crown corporations which adopt most of the trappings and institutions of business organizations.

Any economy must have mechanisms for determining how many and what kinds of resources will be devoted to the production of what kinds of goods and services, in what quantities. For the majority of economic activity, the market mechanism (modified in varying degrees by government regulation, taxation and subsidization) does this more effectively than a centrally-planned economic system. The cues and signals provided to producers and consumers of goods and services through the market system provide a highly decentralized mechanism for determining and revising the mix of production and consumption of goods and services in response to societal wants. One need not defend the market system on the basis of ideology, since it is supported on sound economic grounds, including the institutions of competition, market exchange mechanisms, the pursuit of profit, and the efficacy of decentralized economic decision making. But there are situations in any economy where the market, as an allocator of goods and services, does not work well — where it is either inefficient or inequitable. Inefficiencies arise mainly out of disparities between costs and benefits that are internal to the firm and costs and benefits that are external to the firm. That is, the market may not reflect accurately the total cost to society of producing certain goods and services (for example, pollution costs), and it may not reflect benefits to society which cannot be captured by the firm (for example, the creation of spin-off business opportunities by a major steel-producing firm).

[1] The reader who is interested in a more technical and rigorous economic analysis of these matters may wish to refer to Appendix C.

Unfortunately, it is difficult to quantify these external costs and benefits, even in cases where there is a broad societal consensus that they exist. In these cases, governments often choose to intervene in the marketplace, either through regulation or ownership, in an attempt to make the private costs and benefits to the firm more closely approximate the government's perception of the social costs and benefits of such economic activity. Such intervention reflects a public policy decision based on an unmeasurable economic rationale, but presumably reflecting also a broad social consensus as to what is desirable for a given place and time.

It is difficult, if not impossible, by means of a market price mechanism, to exclude some or all individuals from the consumption of certain goods and services. National defence forces and parks are examples of such "public goods", which are available to all consumers (in the appropriate geographic area), whether or not individuals choose to pay. The outcome is that a public policy mechanism must be substituted for the market mechanism to ensure that enough resources are devoted to the production of goods and services that exhibit these characteristics.

Another manifestation of market imperfection is sometimes referred to as the "natural monopoly." This is the situation where the conditions of supply — the cost conditions — in the industry are such that there is room for only one firm or producer of optimum size. An illustration of this situation in Saskatchewan is the production and distribution of power. In this case, where competition in output markets is non-existent or extremely weak , there is a clear economic basis for government to intervene in the interests of consumers, either by way of regulation or goverment ownership.

For other types of goods and services the external benefits may be judged by society to be sufficiently meritorious that government intervenes to provide more of these kinds of outputs than would be provided by unconstrained market forces; examples would include education and health care. But for most economic activity there is no clear public perception of significant external benefits or costs, and there is no economic rationale for government intervention in the market.

The economic function of distributing goods and services among individuals and groups in the economy is, in most cases, effectively performed through the market. But if there is a perception that the distribution of outputs as determined by relatively unconstrained market forces is in some sense inequitable, governments have tended to intervene in the marketplace to ensure the availability of such goods and services to groups of consumers who are disadvantaged because of location, or income, or some other reason. Examples of redistribution of output on the basis of equity would include the distribution of electric power to rural areas, and of the availability of medical and hospital services to relatively low income groups of consumers. There is continuing controversy about the degree of redistribution that should take place, but the principle of redistribution has been accepted for many decades in Canada and other market societies.

Another economic function of government is the stabilization of economic activity at relatively high levels of employment and relatively low levels of inflation. The goal is to reduce the magnitude of fluctuations in the level of economic activity over time. For many decades, it has been generally accepted as a legitimate function of government in the economic sphere. The role of provincial governments in Canada with respect to stabilization is necessarily a limited one, and relates chiefly to retention of jobs in times of economic adversity. Since provincial governments do not control monetary policy in Canada, they cannot finance successive deficits over a sustained period of time. But they can, with good financial management, engage in countercyclical economic measures within a short period of time — say, a four or five year cycle.

Finally, economic growth is perceived by most people in Canada as a desirable goal of economic policy. The growth of output through time tends to alleviate problems of the distribution of that output; the larger the economic pie relative to the number of people eating it, the less significant is the sharing of that pie, although one must take into account the deterioration or improvement in the condition of some groups of consumers relative to other groups. The growth of output of goods and services through time is, in the judgement of the commission, primarily a function of creativity and innovation on the part of private business. Perhaps the most important contribution that a provincial government can make to the health and growth of the provincial economy is through the adoption of policy directions that will encourage

and nurture a business environment in which business firms perceive the potential for better than average rewards through such creativity and innovation. This dynamic aspect of economic policy has received less attention in the literature than has the static aspect — that is, the efficiency of the economy at a point in time, or in abstraction from time. Indeed, the creation of an environment that is favorable to investment in productive activity by individuals and private firms may be one of the most important contributions that public policy can make to the economic health of a province.

One further aspect of public enterprise or public investment is worth consideration. The decision by the public through its government to provide more of certain kinds of outputs than would be provided through unconstrained market forces does not mean that the public through government must produce these goods and services. Government can make provision for greater output of certain goods and services, or for redistribution of certain goods and services, while at the same time relying on private production of these goods and services. This combination of public and private activity in some sectors of the economy may open up the possibility of having the best of both worlds.

Crown corporations, which are instruments of public policy, would be well advised to specify their corporate objectives in terms of the public policies of which they are the instruments of implementation.

ENTERPRISE AUTONOMY AND PUBLIC CONTROL

A major challenge to government is to develop organizational arrangements in the public enterprise sector that will enhance the achievement of balance and consistency between enterprise autonomy and public control.

The commission has defined "enterprise autonomy" to mean the ability of boards of directors and senior managers of public enterprises to pursue their mandates with a minimum of government influence on the policies and personnel of the enterprise. Enterprise autonomy is essential for the organization to be effective. Autonomy is necessary for the public enterprise to acquire and enhance industry-specific expertise, and to be both innovative and efficient in its operations.

However, public enterprise autonomy cannot be as clearly-defined as that of private enterprise, since public enterprise is an instrument for the achievement of public policy. Although the mandates vary among public enterprises, there must be elements of public control in order to ensure that specific enterprises are indeed establishing and pursuing enterprise objectives that are consistent with their specific mandates. The challenge to government is to generate a healthy balance between the requisite autonomy and control.

There are four key variables in achieving this balance: the clarification of enterprise mandates; the selection of appropriate boards of directors; the selection of well qualified chief executive officers with industry-related experience; and the relationships between the government and the boards of directors. The mandate of a specific public enterprise will determine the relative importance of the other three key variables.

Since the commission has identified a classification system for Crown investments, it follows that the relationships between autonomy and control may vary for enterprises that fit in different classifications. The commission's conclusions and recommendations reflect these differences in classification of Crown investments.

ACCOUNTABILITY OF PUBLIC ENTERPRISE

"Accountability" of public enterprise means the obligation to disclose to the public, through government and the legislature, the degree of success or failure in achieving their mandates. Although it includes financial disclosure of operating results, balance sheets, and capital decisions, accountability for public enterprise also includes qualitative performance evaluations with respect to mandates.

The commission has become aware of deficiencies in the accountability of public enterprise, as a result of its own analysis and deliberations, interviews with individuals and groups, and various other submissions to the commission.

The accountability issue is related to both autonomy and control, and the commission's recommendations reflect an effort to achieve an appropriate balance among the three issues. For example, the appointment of ministers of the Crown to some public enterprise boards of directors may enhance control but reduce the autonomy required for effective performance. For other Crown investments, it may enhance both effectiveness and control. The commission perceived this matter of ministerial involvement at board level as one of the key issues in determining the appropriate organizational arrangements.

Another element that was considered significant is the relationship between public enterprises and government line departments. It may be counter-productive to accountability, for example, for enterprises that are primarily service-oriented to be separated from the appropriate line departments.

CORPORATE OBJECTIVES

Functional classification

The commission recommends that

1 *The mandate and objectives of each corporation be defined succinctly to permit classification as a departmental service unit, a competitive commercial business, or a non-competitive commercial business. The category "Crown corporations with multiple objectives" should be eliminated.*

Classification of the Crown corporations is essential for a clarification of the mandate of each corporation. Although the government must ultimately make a decision concerning the primary orientation and long-term future of each corporation with a greater degree of precision, the commission has, in its deliberations and recommendations, classified the twenty-four corporations in place on March 31, 1982 into four categories:

- Departmental service units
- Competitive commercial businesses
- Non-competitive commercial businesses
- Crown corporations with multiple objectives

Departmental service units

- FarmStart
- Municipal Financing Corporation of Saskatchewan
- Saskatchewan Computer Utility Corporation
- Saskatchewan Crop Insurance Corporation
- Saskatchewan Educational Communications Corporation
- Saskatchewan Government Printing Company
- Saskatchewan Grain Car Corporation
- Saskatchewan Water Supply Board
- The Saskatchewan Land Bank Commission

These are the Crown corporations that appear to the commission to have been established to administer government's social and economic programs. No compelling evidence was presented to convince the commission that the programs could not be administered equally well by the appropriate line departments of government. Indeed, the most frequent rationale for incorporation of these agencies was that it was more convenient to operate them as Crown corporations.

The commission suggests that incorporation as a vehicle for administering programs that are basically line department functions may shield such operations in part from legislative scrutiny. If that is the case, accountability of the program managers is significantly reduced in order to increase autonomy, without the provision of clear measures of performance compared to mandate.

Competitive commercial businesses

- Agricultural Development Corporation of Saskatchewan
- Crown Investments Corporation of Saskatchewan (including its wholly-owned subsidiaries)
- Potash Corporation of Saskatchewan
- Saskatchewan Development Fund Corporation
- Saskatchewan Forest Products Corporation

- Saskatchewan Fur Marketing Service
- Saskatchewan Minerals
- Saskatchewan Mining Development Corporation
- Saskatchewan Oil and Gas Corporation

In the commission's judgement, some Crown corporations are clearly operating like private business corporations. The corporate objectives focus on the generation of profits, although the original rationale for their establishment appears to have included other socially-oriented mandates — such goals as creation of head offices in the province, a major government presence in important resource industries, creation or retention of employment opportunities in the province, and reduced vulnerability to foreign control.

Non-competitive commercial businesses

- Saskatchewan Power Corporation
- Saskatchewan Telecommunications

This category employed in the commission's review includes public enterprises that, for the most part, do not compete in the markets for their outputs of goods and services. This lack of competition reflects the economics of the industries. These are the "natural monopolies", in which the province could not currently support more than one optimum size producer. The mandate appears to be to provide utility services at minimum (and comparable) cost to both urban and rural parts of the province, and to break even or generate some net revenue in the process.

Crown corporations with multiple objectives

- Saskatchewan Economic Development Corporation
- Saskatchewan Government Insurance
- Saskatchewan Housing Corporation
- Saskatchewan Transportation Company

These corporations are hybrids. Their mandates in particular require clarification. They appear to have elements of both competitive and non-competitive commercial Crown corporations, as well as departmental service units. The commission recognizes that its placement of specific Crown corporations in particular classifications is not definitive. Although the commission deliberated at length to arrive at its placement of various corporations, future developments may require a re-orientation of a corporation's mandate, and may call for appropriate reclassification.

Performance Standards

The commission recommends that

2 *The performance goals of each corporation be clearly documented and communicated to all employees and the general public;*

3 *Assessment of a corporation's success be based on its record in achieving the performance goals;*

4 *Crown corporations classified as departmental service units have their mandates re-defined to exclude competition with the private sector ;*

5 *Commercial business corporations be required to publish their financial statements quarterly, using standards of financial disclosure that are consistent with those in the private sector ;*

6 *Competitive commercial business corporations be required to pay maximum dividends.*

This series of recommendations is designed to improve the accountability of all Crown corporations, the financial disclosure of the commercial business corporations, and the financial returns from the competitive commercial business corporations.

ADMINISTRATIVE STRUCTURE

Minister in charge

The commission recommends that

7 *Cabinet ministers continue to be responsible to the Legislative Assembly for particular Crown corporations, but not serve as directors or officers of competitive or non-competitive commercial Crown corporations, or their subsidiaries;*

8 *A committee of three cabinet ministers be responsible to the Legislative Assembly for CIC and its subordinate corporations.*

The commission recognizes and endorses the system of ministerial responsibility to the legislature for Crown corporations. However, the commission is convinced that the balance between ministerial influence and corporate autonomy of the commercial boards of directors must be revised in favour of corporate autonomy.

Cabinet control through board appointment and directives provides an adequate countervailing influence to a greater degree of corporate autonomy.

The reason for the committee of three ministers to be responsible for CIC is the size and importance of that corporation, when re-organized as proposed. In the view of the commission, it would not be advisable for one minister alone to be responsible for an organization of this magnitude.

Directors and officers

The commission recommends that

9 *Directors, including chairmen, of commercial business corporations be selected only from qualified representatives of the general public, other than MLA's or government employees, and appointed for one-year renewable terms by cabinet;*

10 *Chief executive officers serve as ex-officio board members but not as chairmen of their corporations;*

11 *Chief executive officers be selected and appointed by each corporation's board for a specified term.*

These recommendations are designed to bring the responsibilities of directors and officers more into line with commercial custom. In addition, the commission has a number of suggestions intended to assist in re-structuring the commercial boards of directors.

In selecting board members, particularly chairmen, competence should be the overriding criterion. Preference should be given to qualified Saskatchewan residents, but highly qualified non-residents should not be excluded merely because of their residence status. The size of the boards should be restricted to ensure efficient performance. Directors' fees should be in line with comparable business practice.

Responsibilities of board members should be clearly defined and communicated. These responsibilities should include securing managerial succession within the corporation, influence in selecting auditors to be appointed by cabinet, selection of legal counsel and corporate secretaries (who should not be board members) and formation of audit committees.

Chief executive officers should have industry-related experience and should be compensated at levels comparable to the private sector.

Role of CIC

The commission recommends that

12 *CIC function as a holding company for all competitive commercial Crown corporations, subsidiaries and private sector business investments including minority equity participations;*

13 *CIC be given as its central objective the maximization of dividend payments to the province;*

14 *Directors, in addition to members selected from the general public, include CIC's CEO and the chairmen of the boards of the major subordinate corporations as ex-officio members, not to exceed one-half of all directors, and that a quorum be made up of directors other than ex-officio members.*

These recommendations are designed to re-define the role of CIC as a commercial holding company with a view towards obtaining a satisfactory return for the people of the province. This mandate of CIC would require its subordinate corporations to be clearly profit oriented, and to pursue dividend policies in accordance with CIC's central objective.

CIC will continue to occupy a pivotal position, but the primary orientation should shift from political to commercial. Any functions inconsistent with the maximization of dividends should be removed from CIC and entrusted to other government agencies or departments.

A recommended administrative structure of Crown investments is set out graphically in Table 4. The commission recognizes that the specific relationships of CIC to its subordinate corporations can only be determined if and when the commission's main recommendations are accepted.

FINANCIAL POLICIES

The commission recommends that

15 *Dividend policy be a major component in the corporate planning process of competitive commercial Crown corporations;*

16 *Competitive commercial Crown corporations pay grants to the province equal to taxes on income paid by similar businesses in the private sector;*

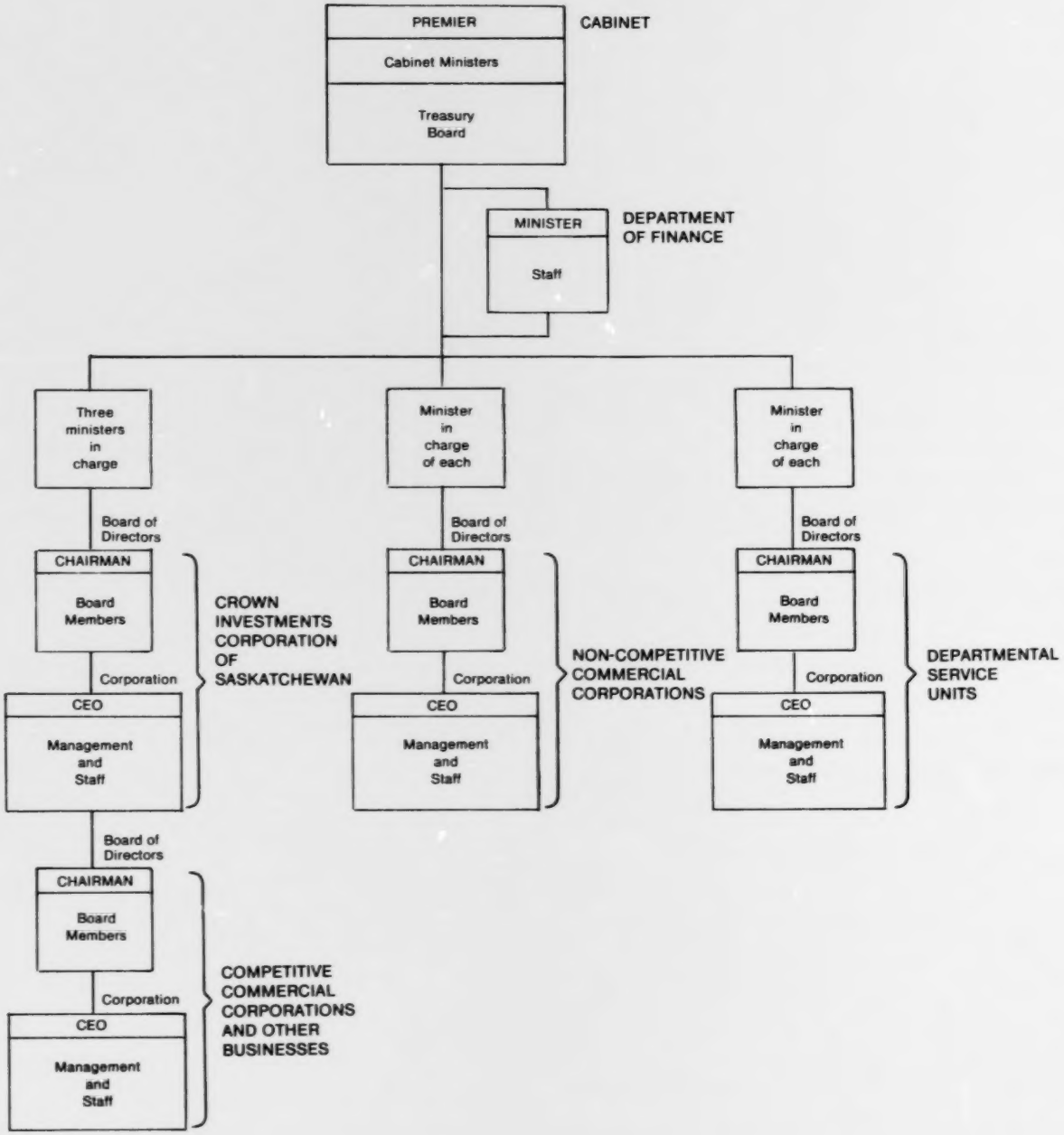
17 *Competitive commercial Crown corporations pay a guarantee fee for borrowed capital provided by the province.*

Competitive commercial Crown corporations enjoy financial advantages over their private sector counterparts. Among them are the ability to obtain financing at advantageous rates, enhanced by specified or implied government loan guarantees, and the absence of income taxes. Furthermore, they do not have a fixed dividend policy calling for a certain portion of their profits to be returned to investors.

TABLE 4

PROVINCE OF SASKATCHEWAN
RECOMMENDED ADMINISTRATIVE STRUCTURE
OF CROWN CORPORATIONS

ORGANIZATION CHART



The above series of recommendations is designed to redress the financial imbalance between competing firms in the public and private sectors in order to put them on a more equal footing.

It is recognized that competitive commercial Crown corporations which the government chooses to retain, like their private sector counterparts, require adequate capitalization to ensure continued growth and success, and they should have equity capital appropriate for their operations. The CIC board will wish to explore alternative financing methods such as lease and project financing. The CIC financial structure should be such as to avoid significant debt which results in excessive reliance on dividends from subordinate corporations.

The role of the Department of Finance should include a co-ordinating and monitoring function regarding capital demands of CIC and the non-competitive business corporations. With respect to competitive business corporations, it should be sufficient for the department to deal directly with the finances of CIC only, rather than any of its subordinate corporations.

The commission urges caution with respect to conversion of Crown investments to private ownership by means of public share issues. Any contemplated conversion should take into account the difficulties encountered in other jurisdictions by such attempts.

CONCLUDING COMMENTS

It is undesirable for governments to by-pass some of the traditional control functions of the legislature via the Crown corporation route. Apart from the social, economic, or other merits of certain Crown investments, legislative control should still be a key element in the policy decision with respect to Crown investments. Successive provincial governments have already shifted a major portion of provincial economic activity into the Crown corporation sector, thus removing it from both the private sector and the traditional line departments. As a result, approximately 50% of the public sector work force is now employed by Crown corporations. This raises the issue of the extent to which such a shift has undermined the traditional powers of the legislature.

The commission did not consider the matter of disposition or acquisition of Crown investments to be a part of its mandate. However, the government should make a general policy decision regarding a periodic review of the purpose, necessity and long-term future of Crown corporations.

In summary, the commission believes the most fundamental recommendations contained in this report relate to:

- a general re-ordering of corporate mandates,
- re-structuring the roles of ministers and directors, and
- specific re-definition of the central purpose of CIC.

While the remaining recommendations are considered important, their effectiveness would be diminished without adoption of these fundamental recommendations.

APPENDICES

APPENDIX A

June 9, 1982 O.C. 906/82

TO HIS HONOUR

THE LIEUTENANT GOVERNOR IN COUNCIL:

The undersigned has the honour to report that:

1. Sections 2 and 5 of **The Public Inquiries Act**, R.S.S. 1978, c. P-38 provide in part as follows:

> 2 The Lieutenant Governor in Council, when he deems it expedient to cause inquiry to be made into and concerning a matter within the jurisdiction of the Legislature and connected with the good government of Saskatchewan or the conduct of the public business thereof, or that is in his opinion of sufficient public importance, may appoint one or more commissioners to make such inquiry and to report thereon.
>
> 5(1) The commissioners, if thereunto authorized by the Lieutenant Governor in Council, may engage the services of such accountants, engineers, technical advisers or other experts, clerks, reporters and assistants as they deem necessary or advisable, and also the services of counsel to aid and assist the commissioners in the inquiry.

2. It is of sufficient public importance to cause inquiry to be made into and concerning investments of the Government of Saskatchewan in Crown Corporations and other businesses and to appoint commissioners to make such an inquiry and report thereon.

The undersigned, therefore, has the honour to recommend that your Honour's Order do issue pursuant to sections 2 and 5 of **The Public Inquiries Act,** R.S.S. 1978, C. P-38:

(a) Appointing the following persons as a commission to be known as The Crown Investments Review Commission:

W. Wolff, F.C.A. (Chairman)
Karim W. Nasser, PhD.D.P. Eng., Saskatoon
D. F. R. Heron, C.A., Saskatoon
R. B. Laschuk , Q.C., Regina
D. E. Shaw, Ph.D., Regina
Graham Walker, Regina
Jim MacLennan, Vancouver

(b) Designating the said W. Wolff, F.C.A., of Regina as Chairman of the said Commission:

(c) Directing the said commission:

(i) to review the operating objectives, administrative structure and financing arrangements of investments of the Government of Saskatchewan in Crown Corporations and other business;

(ii) to define the objectives of Crown investments and determine the best way of operating, controlling and financing Crown investments:

(iii) to report with all due dispatch to the Lieutenant Governor in Council of Saskatchewan, through the Honourable Minister of Finance, together with whatever recommendations it considers beneficial and in the interests of the people of Saskatchewan with respect to the above matters.

(d) Authorizing the said Commissioners to engage the service of such clerks, assistants, technical advisers or other experts as are necessary to carry out the responsibilities of the Commission.

Recommended by:

Grant Devine
President of the Executive Council

Approved by:

Grant Devine
President of the Executive Council

Ordered by:

C. Irwin McIntosh
Lieutenant Governor
REGINA, Saskatchewan

APPENDIX B

COMMISSION MEMBERS

WOLFGANG WOLFF, F.C.A. (Chairman)

Partner
Deloitte Haskins & Sells
Regina

ROY B. LASCHUK, Q.C. (Vice-Chairman)

Partner
Balfour, Moss, Milliken, Laschuk & Kyle
Regina

DAVID F. R. HERON, C.A.

Partner
Peat, Marwick, Mitchell & Co.
Saskatoon

JAMES D. MACLENNAN, C.A.

Chairman of the Board
Canadian Dredge & Dock Co. Ltd.
Vancouver

KARIM W. NASSER, Ph.D.

Professor of Civil Engineering
University of Saskatchewan
Saskatoon

DON E. SHAW, Ph.D.

Vice-President
University of Regina
Regina

GRAHAM H. WALKER

Chairman of the Board
Houston Willoughby Limited
Regina

EXECUTIVE DIRECTOR

HOWARD E. CROFTS, C.A.

Manager
Deloitte Haskins & Sells
Regina

OFFICE MANAGER

JEAN A. DRUBE

Regina

ECONOMIC CONSULTANT

DAVID L. BEATTIE, Ph.D.

Associate Professor
Department of Economics
University of Regina
Regina

The commission wishes to acknowledge and recognize the contribution made by its staff, and to pay special tribute to the executive director, office manager and economic consultant, whose dedication, hard work and specialized skills were of significant importance in the creation of this report.

RATIONALES FOR PUBLIC ENTERPRISE

D. L. BEATTIE
DEPARTMENT OF ECONOMICS
UNIVERSITY OF REGINA

PAPER PREPARED FOR THE CROWN INVESTMENTS REVIEW COMMISSION,
SASKATCHEWAN

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1. INTRODUCTION

The primary orientation and analysis of this paper are economic. Public enterprise, its rationale, operational criteria, and structure will be examined principally in terms of two specific economic concepts: efficiency and equity. Both concepts possess dynamic, as well as static dimensions.[1] As such, use is not only made of the literature on public ownership and regulation, but also draws upon the works of public finance and microeconomics. This approach does not imply that public sector decision-making processes[2] are ignored, nor that narrow textbook assumptions are adopted. Where possible, constraints, economic and non-economic, will be recognized.

At the outset, while not intending to discount the valuable contributions which economics can provide, it is necessary to avoid any pretense concerning the analysis to follow. Incomplete theory and understanding of subject matter, as expected, also exist within the economics discipline. As will be seen, the analysis of efficiency and equity, of statics and dynamics does not proceed with equal degrees of rigor. Furthermore, uncertainty as to the future, as to institutional changes within the economy also serves to qualify policy applications of even accepted economic principles.

The limits of combining theory with policy must also be qualified in another respect. Normative, as opposed to positive issues[3] are seldom distinct. Economic analysis can point out the relative costs and benefits of alternative courses of action; indeed, in the case of positive economic questions, relatively clear answers are frequently possible. However, when normative issues overlap, when issues contain pervasive non-economic or political considerations, economic analysis, while necessary and relevant, alone is not sufficient to arrive at definitive answers. Conflict-choice decisions involving non-efficiency, value laden judgements of what constitutes the 'public interest' will not find resolution, only assistance from economics.

The analysis of public enterprise is therefore an exercise in political economy. It attempts to combine economic theory and public policy, recognizing that economic and non-economic constraints exist, that imperfect analysis is employed, and finally, that positive and normative issues are present.

2. THE PUBLIC SECTOR

A. Economic Functions of Government

Whether originating from their own initiative, or of probably greater significance, from interpretations of the needs and demands of the public, governments have now accepted three broad and overlapping economic responsibilities. Following Musgrave,[4] these responsibilities may be classified as the stabilization, allocation, and distribution functions of government.

By stabilization, one identifies the efforts of government to achieve relative price stability, full employment, balance of payments equilibrium, economic growth, and regional economic development. By allocation, one identifies the attempts of government to improve market sector performance either through constraining and redirecting private sector activity, or through direct public sector provision of goods and services. Finally, by distribution, one associates the efforts of government to redistribute income and wealth in line with admittedly ill-defined, illusive, and non-stable notions of social welfare.

The three economic functions of government are based upon a 'promoting the public interest rationale' for intervention. To fulfill these responsibilities, a multitude of economic policies have been spawned, policies which impact upon every sector, business, and household within the economy. While a unique one-to-one correspondence does not exist between a particular policy tool and a given objective, and while recognizing that policies frequently yield cross-purpose impacts (advancing one objective, conflicting with others), the following is illustrative of the pervasive sweep of government within a mixed market economy. To effect the stabilization objectives, one finds the use of macro expenditure and taxation policies, money supply and interest rate management, income policies (wage and price

restraints), exchange rate controls, subsidies, tariffs, and quotas, to list only a few. The allocation function has also generated a complex package of policy tools. Competition and regulation policies, labour and environmental standards, and selective tax and subsidy programs are all employed to induce or coerce market activity in directions considered desirable by government. Furthermore, public enterprises and line-government departments are not insignificant vehicles for achieving allocative objectives, for publicly providing goods and services. Finally, to effect redistributions of income and wealth, one finds the presence of differential, that is, discriminatory[5] tax and transfer programs, as well as an extensive array of social welfare programming.

B. Public Interest and Public Policy

When governments pursue public interest objectives through economic policy, ambiguities and conflicts in decision-making soon emerge. Illustrative of such difficulties is the absence of uniform agreement on the use of specific policy instruments. For example, variations on the use and scope of public enterprise across the provinces, variations in the operating criteria guiding Crown corporations, as well as variations in their objectives and administrative control structures.

In a general sense, the ambiguities and apparent conflicts in decision-making may be usefully classified as arising from two interacting sources. The first is economic in origin, the second being non-economic and largely political in character.

(i) Economics: Social Welfare (Efficiency and Equity)

Aside from the very large caveat that imperfect knowledge exists within the discipline, a major source of ambiguity for economic decision-making centers on the economist's concept of social welfare. Its meaning and maximization has two specific dimensions: efficiency and equity.

In a static context, one refers to the achievement of X-efficiency[6] and allocative efficiency.[7] Both center on the desirability of obtaining maximum outputs from minimum inputs. X-efficiency is the narrower concept. It refers to situations where organizations (firms and governments) are internally cost efficient, where inputs (labour and non-labour) have been obtained at the lowest possible prices, and where the most efficient technologies, management, and organizational structures have been adopted. In other words, there are no internal inefficiencies, opportunities for lowering costs of production have been fully exploited. Loosely described, the concept of allocative efficiency refers to a state where interactions among firms (production) and consumers (consumption) generate maximum output with the least resource cost in a situation of full employment of capital and labour. Allocative efficiency allows maximization of 'individual' consumer welfare or real income.

Much effort has been spent on examining structures and policies which yield such efficiencies, that is, yield what is termed Pareto optimal solutions. For example, if markets contain no imperfections or externalities,[8] perfectly competitive private enterprise structures in long run equilibrium[9] will generate both allocative and X-efficiency. However, contrary to the misconceptions of many critics, economists primarily view such structures and efficiency notions as performance standards, not as representations of reality. Needless to say, the requirements for attaining Pareto efficiency are severe.[10]

In a dynamic context, the concept of efficiency enlarges to a concern with optimal resource use through time, to considerations of institutional change, labour force growth, capital accumulation, and technical progress. Relative to static efficiency, the analysis of the conditions and structures maximizing efficiency through time is not well developed or understood. Indeed, the two dimensions of efficiency may be in conflict. For example, a number of theories suggest that technological advances are best fostered by large firm, monopolistic industry structures, rather than by small firm, competitive market structures.[11] Nevertheless, in spite of the ambiguities present, concerns with optimal performance over time cannot be ignored by public policy.

Stemming from the concept of Pareto efficiency, two developments of considerable policy significance have occurred. These developments also define the two major branches of welfare economics. The first involves an examination of market failures (externalities), and thereby has led to the development of guidelines and policies which will either directly remove, or indirectly neutralize the sources of market inefficiency.

The second development is a direct foray into normative economics, a concern principally[12] with income distribution, with notions of equity and distributive justice. Efficiency maximization constitutes a necessary, not a sufficient condition for maximizing society's welfare. By concentrating upon the individual consumer, Pareto optimality merely guarantees that no other rearrangement of resources is possible which would allow one individual to be made better off, without at the same time decreasing the welfare of another individual. In this context, efficiency is a narrow concept, it is consistent with very uniform (equal) income distributions, as well as with highly concentrated (unequal) distributions. As a result, concerns with equity have involved issues of size distribution (how income is distributed across the population) and functional distribution (how income is distributed among labour, capital, and land). In a dynamic context, equity may be extended to a concern with intergenerational income streams, to tradeoffs between present as opposed to future consumption.

The inherent difficulty with attempts to extend economics to include equity considerations is the necessity to undertake interpersonal evaluations of welfare, that is, to define a precise social welfare function for society. While it would be incorrect to assert that this branch of welfare economics has not produced valuable insights, for example, use of horizontal equity principles, use of minimum efficiency-loss criterion, and use of compensation principles in cost-benefit analysis, it, nevertheless, must be conceded that to date no unambiguous, objective, value-free measures of social welfare in an equity sense have been developed.

However, in spite of the subjectivity of the equity concept, it is of direct relevance for public sector decision-making. Consider, for example, a proposed government project (a new park or dam), also assume the best available accountants and economists correctly evaluated all direct (and indirect) allocative costs and benefits of the project. Benefits were found to exceed costs, and therefore project approval was justified on efficiency grounds. Unfortunately, equity considerations cannot be ignored.[13] The incidence of benefits and costs seldom distribute uniformally across all individuals in society, gainers and losers are frequently different segments of the population, and as a result, differential income distribution (equity) effects are present. Even though one may be skeptical of the ability of governments to accurately reflect society's social welfare function, decisions are made as to whether equity effects (if negative) are sufficient to offset the efficiency gains, and thereby signal project refusal. Conversely, many policies which may appear to be ludicrous in terms of generating efficiency losses, for example, maintaining services when revenues do not cover costs (cross-subsidization), or policies which intrude upon the resource sector in order to capture economic rents (or excess profits), may nevertheless be firmly justified on equity grounds.

The above problem of tradeoffs or conflicts between economic efficiency and equity appear to be intractable. In a strict theoretical sense, they may well be. However, at a practical level, the question is ultimately one of magnitude and of whether the two concepts can be separated, for example, when compensation to losers is both possible and required. At a maximum when equity impacts are either minimal or separable, considerable analysis[14] exists to guide public sector, public enterprise decision-making so as to improve efficiency when market imperfections are present. At a minimum, when equity conflicts are significant and non-separable, the same analysis can at least specify the net costs or benefits in terms of the efficiency standard. In either case, the potential for improvements in public sector performance is significant.

(ii) Non-Economic, Political Constraints

While this paper is not directed at political theory, even if one did possess such knowledge, it is necessary to acknowledge in a limited fashion the impacts of political constraints upon economic decision-making within the public sector.

Two dominant theories[15] of political behavior and decision processes may be identified. The first, individualistic in approach, assumes that politicians seek to maximize the probabilities of their re-election (votes). Such hypotheses do not necessarily carry negative connotations. Rather, they merely specify first order objectives; election is a necessary requirement to carry out any other motives, altruistic or otherwise. The second approach, pluralistic in origin, views the political process as an outcome of competition and compromise among various pressure groups in society. Mixture theories are also present. However, regardless of the model, they frequently imply that political influences upon public sector decision-making are unlikely to result in the maximization of the public interest or social welfare.

As a result, economists frequently lament that their 'sound' policy advice has been ignored or altered by governments, detracting from both efficiency and equity criteria. However, the alternative, of recognizing political constraints, does not imply that the economist compromise his discipline and merely recommend policies which are politically expedient. Other implications are possible. Policy formations may be made which not only meet efficiency requirements, but also are implementable, or alternatively, to formulate policies which insulate or minimize the pressures upon government to alter their intended effects. Consideration of such factors appears particularly relevant for governmental choice of specific policy instruments, as well as when considering issues of independence, control, and accountability of public enterprises.[16]

3. PUBLIC ENTERPRISE

A. Character and Significance

No unambiguous, universally agreed upon definition of public enterprise exists. In Canada, at both the federal and provincial level, one finds Crown corporations operating not only within the commercial sector, that is, providing marketable goods and services largely in a self-financing manner, but also one finds Crown corporations operating in administrative, supervisory, and regulatory capacities, that is, providing services similar to government departments, and in the main, dependent upon general government revenues to cover operating costs. Conversely, the overlap could be viewed as also running in an opposite direction. A number of 'accepted' or 'traditional' government departments could theoretically be constructed in a Crown corporate form. As a result, narrow or broad conceptions of what constitutes a public enterprise are possible.

While not of critical significance for much of the analysis on public sector decision-making, and while not intending to discount their possible usefulness in a departmental capacity, a narrow, primarily commercial definition of public enterprise initially will be adopted. Their characteristics are captured by Statistics Canada's[17] approach: public enterprises entail majority government ownership, relative independence, goods and services are principally sold to non-governmental sources, prices charged primarily reflect costs, and finally, customer purchases are largely voluntary.

Such a definition serves to illustrate two basic points. First, public enterprise (ownership) is a substitute for private enterprise (ownership), it is not a substitute for regulation. If one accepts the need for intervention, whether it be privately owned utilities or public enterprise utilities, regulation/control is required in both cases. Second, public enterprise and private enterprise are not distinguishable on the basis of characteristics of goods and services provided; in both cases, finance may originate from the market sector (user prices) or from the government sector (public finances).[18]

In Canada, public enterprises have traditionally been associated with the utilities, communications, and transportation sectors, more recently, extensions into the finance, manufacturing and resource sectors have occurred. To provide some perspective as to their significance, Table 1 presents employment data[19] on public enterprises (provincial and federal) for the year 1982. However, absolute size comparisons are not easily interpreted; they not only reflect differences in public enterprise use by governments, but also reflect differences in size of province. Therefore, relative data are also reported. Employment and percentage shares are also given for the public sector, the private sector, and the total economy of each province.

Table 1

COMPARATIVE[1] PUBLIC ENTERPRISE, PUBLIC SECTOR EMPLOYMENT STATISTICS
Federal and Provincial Governments, March, 1982

A. Number of Employees:

Source	Public Enterprise		General Government Administration		
	Federal	Provincial	Federal	Provincial	Municipal[2]
Government of Canada	144,090	—	441,065	—	—
Newfoundland	4,233	2,776	9,937	14,060	2,462
Prince Edward Island	828	254	2,925	4,171	302
Nova Scotia	4,352	5,720	36,141	21,722	6,310
New Brunswick	6,648	3,750	14,536	25,658[3]	4,021
Quebec	44,032	34,715	83,420	92,384	62,845
Ontario	39,831	39,558	172,099	107,937	123,961
Manitoba	12,583	11,246	20,561	14,264	9,983
Saskatchewan	3,862	14,831	13,266	16,951	9,886
Alberta	11,604	23,077	29,336	58,383	31,171
British Columbia	7,861	23,705	42,789	44,316	29,697
Yukon & N.W.T.	1,023	110	3,916	5,657	790
Other	7,233	—	12,139	—	—
Totals	144,090	159,742	441,065	405,503	281,428

Source	Total Public Sector			Total Private Sector	Total Employment[4]
	Federal	Provincial	Municipal		
Government of Canada	585,155	—	—	—	—
Newfoundland	14,170	16,836	2,462	144,532	178,000
Prince Edward Island	3,753	4,425	302	34,520	43,000
Nova Scotia	40,493	27,442	6,310	231,755	306,000
New Brunswick	21,184	29,408	4,021	183,387	238,000
Quebec	127,452	127,099	62,845	2,182,604	2,500,000
Ontario	211,930	147,495	123,961	3,551,614	4,035,000
Manitoba	33,144	25,510	9,983	381,363	450,000
Saskatchewan	17,128	31,782	9,886	364,204	423,000
Alberta	40,940	81,460	31,171	934,429	1,088,000
British Columbia	50,650	68,021	29,697	1,050,632	1,199,000
Yukon & N.W.T.	4,939	5,767	790	15,304	26,800[5]
Other	19,372	—	—	—	—
Totals	585,155	565,245	281,428	9,054,972[6]	10,486,800

Table 1 (Continued)

B. Public Enterprise Employment Shares (Percentage of):

Source	General Government Administration		Total Public Sector		Private Sector	Total Employment
Government of Canada	32.7		24.6		1.6	1.4
	Prov.	Prov./Mun.	Prov.	Prov./Mun.		
Newfoundland	19.7	16.8	16.5	14.4	1.9	1.6
Prince Edward Island	6.1	5.7	5.7	5.4	0.7	0.6
Nova Scotia	26.3	20.4	20.8	16.9	2.5	1.9
New Brunswick	14.6	12.6	12.8	11.2	2.0	1.6
Quebec	37.6	22.4	27.3	18.3	1.6	1.4
Ontario	36.6	17.1	26.8	14.6	1.1	1.0
Manitoba	78.8	46.4	44.1	31.7	2.9	2.5
Saskatchewan	87.5	55.3	46.7	35.6	4.1	3.5
Alberta	39.5	25.8	28.3	20.5	2.5	2.1
British Columbia	53.5	32.0	34.8	24.3	2.3	2.0
Yukon & N.W.T.	1.9	1.7	1.9	1.7	0.7	0.4
Total Provincial Average	39.4	23.3	28.3	18.9	1.8	1.5

C. Total Public Sector Employment Shares (Percentage of):

Source	Total Private Sector			Total Employment		
Government of Canada	6.5			5.6		
	Prov.	Prov./Mun.	Prov./Mun./Fed.	Prov.	Prov./Mun.	Prov./Mun./Fed.
Newfoundland	11.6	13.4	23.2	9.5	10.8	18.8
Prince Edward Island	12.8	13.7	24.6	10.3	11.0	19.7
Nova Scotia	11.8	14.6	32.0	9.0	11.0	24.3
New Brunswick	16.0	18.2	29.8	12.4	14.0	22.9
Quebec	5.8	8.7	14.5	5.1	7.6	12.7
Ontario	4.2	7.6	13.6	3.7	6.7	12.0
Manitoba	6.7	9.3	18.0	5.7	7.9	15.3
Saskatchewan	8.7	11.4	16.1	7.5	9.9	13.9
Alberta	8.7	12.1	16.4	7.5	10.4	14.1
British Columbia	6.5	9.3	14.1	5.7	8.1	12.4
Yukon & N.W.T.	37.7	42.8	75.1	21.5	24.5	42.9
Total Provincial Average	6.2	9.4	15.8	5.4	8.1	13.7

Table 1 (Sources and Footnotes)

Sources: Statistics Canada, **The Labour Force** (71-001), March, 1982.

Statistics Canada, **Federal Government Employment** (72-004), January-March, 1982.

Statistics Canada, **Provincial Government Employment** (72-007), January-March, 1982.

Statistics Canada, **Local Government Employment** (72-009), January-March, 1982.

Statistics Canada, **Quarterly Estimates of Population for Canada and the Provinces** (91-001), April, 1982.

Statistics Canada, **Canada Year Book** (CS11-402E), 1981.

Footnotes:

1. Care must be exercised in the interpretation of these comparative statistics. Methods of service delivery vary by province, services provided by provincial governments in one province may be provided by municipal governments in another, or alternatively, may be subsidized by government for provision by the market sector. Furthermore, public enterprises are defined by Statistics Canada as possessing the following characteristics: majority government ownership, relative independence, goods and services are primarily sold to non-governmental sources, prices charged primarily reflect costs, and customer purchases are voluntary. Of the Crown corporations in Saskatchewan, only the following fourteen are included (the remainder being classified within general government administration): Potash Corporation of Saskatchewan, Saskatchewan Economic Development Corporation, Saskatchewan Forest Products, Saskatchewan Fur Marketing Service, Saskatchewan Government Insurance Office, Saskatchewan Housing Corporation, Saskatchewan Liquor Board, Saskatchewan Minerals, Saskatchewan Mining Development Corporation, Saskatchewan Oil and Gas Corporation, Saskatchewan Power Corporation, Saskatchewan Telecommunications, Saskatchewan Transportation Company, and Saskatchewan Water Supply Board.
2. Includes municipal waterworks.
3. February statistic.
4. Labour force survey excludes inmates of institutions, Indians on reserves, and members of the armed forces.
5. Estimated.
6. Also excludes the 'other' (outside Canada) federal employees of public enterprise and general government administration.

Figure 1

PUBLIC ENTERPRISE EMPLOYMENT, PERCENTAGE SHARE OF TOTAL PUBLIC SECTOR EMPLOYMENT, FEDERAL AND PROVINCIAL GOVERNMENTS, MARCH, 1982

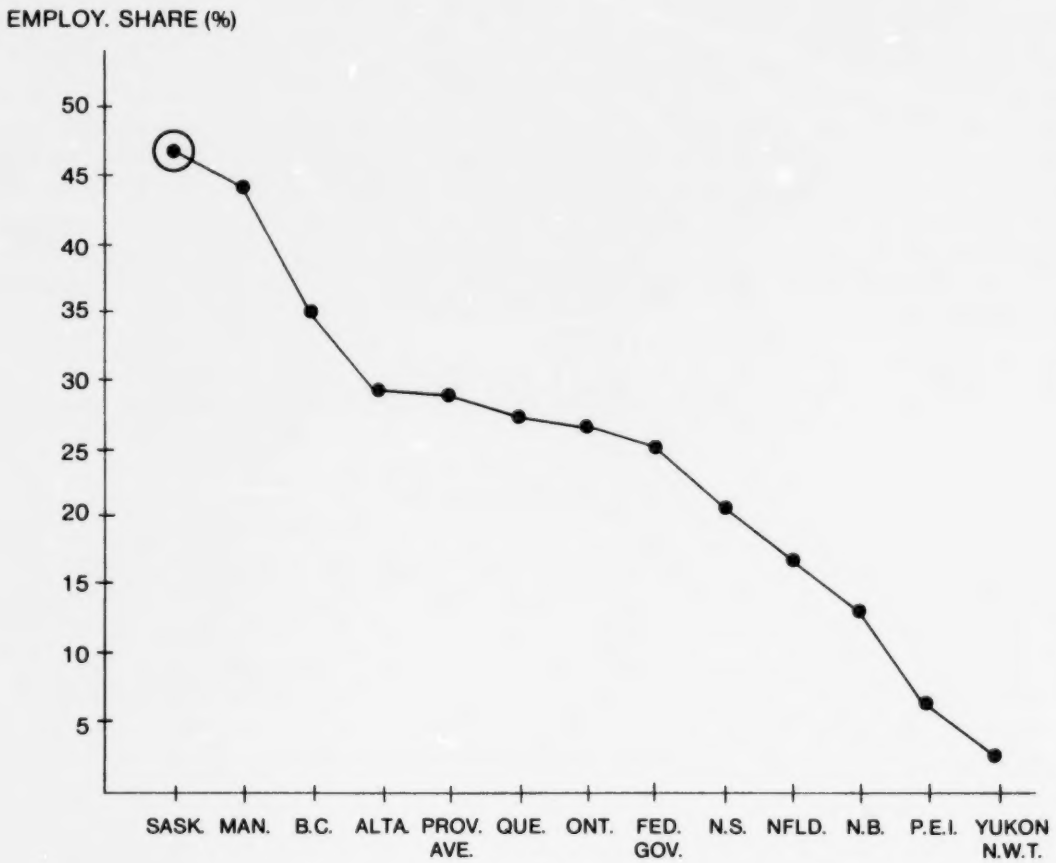
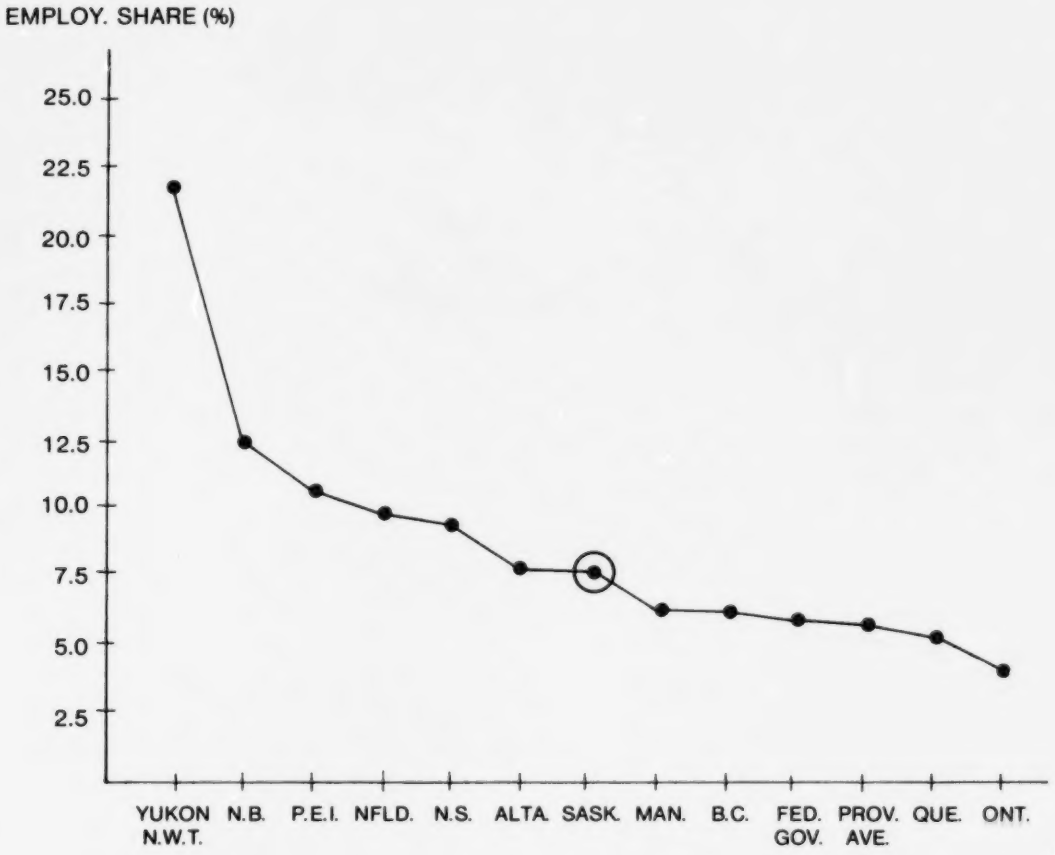


Figure 2

TOTAL PUBLIC SECTOR EMPLOYMENT, PERCENTAGE SHARE OF TOTAL EMPLOYMENT (PUBLIC AND PRIVATE), FEDERAL AND PROVINCIAL GOVERNMENTS, MARCH, 1982



While many comparisons are possible, two interesting statistics will be specifically commented upon. In terms of public enterprise employment as a percentage of total public sector employment (public enterprise and general government administration), Saskatchewan's statistic is the highest in Canada. Of total public sector employment, approximately forty-seven per cent is located in the Crown corporations (narrowly defined). This compares to an all-province average (size weights) of twenty-eight per cent and a federal government share of twenty-five per cent (see Figure 1). Such a comparison is perhaps not surprising. However, if one compares total public sector employment as a percentage of total employment within the province, the results are somewhat surprising (see Figure 2). Saskatchewan is no longer at the extreme. In fact, given the relationship between public sector employment and size of province, Saskatchewan's statistic is not only consistent with the general pattern, its share (seven and one-half per cent) is at the lower end of the distribution and identical to Alberta's percentage.[20]

What implications are present? Comparisons of public enterprise statistics by themselves are probably misleading. Otherwise, how does one explain the apparent anomaly in the employment data, that is, Saskatchewan's relatively high intensity use of Crown corporations, and yet relatively low share of total public sector employment. At least two[21] explanations are possible. First, Saskatchewan's civil service employees (general administration) are more efficient than their counterparts in other provinces, thereby counteracting the Crown sector so as to decrease the total public sector percentage. A second explanation is to argue no differences in productivity, but rather that a number of Crown corporations in Saskatchewan are carrying out functions which are performed by line-departments in other provinces. These observations are not intended to discount the size or significance of Crown corporations in Saskatchewan. They merely emphasize that public enterprise data alone will probably yield over-estimates of their relative importance; they emphasize the choices among alternative policy instruments open to governments.

B. A Measure of Efficiency Changes

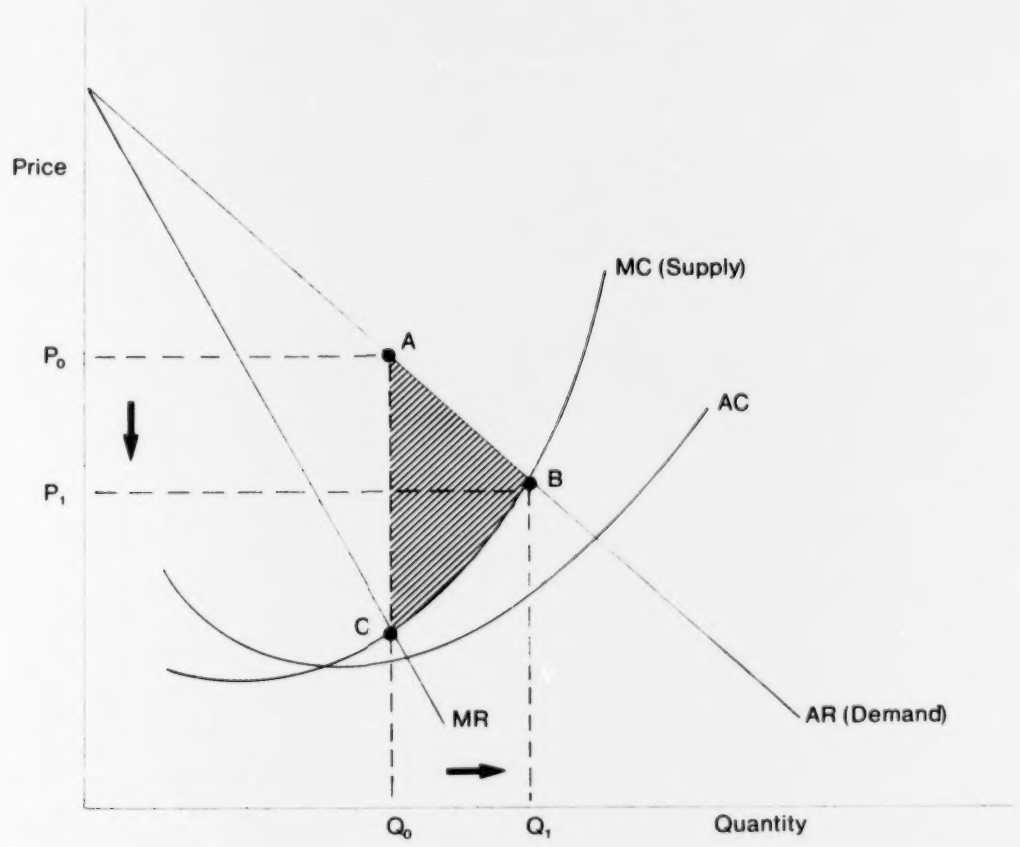
Before one can examine the rationale for public enterprise, indeed, before one can evaluate pricing and investment criteria, it is necessary to possess a measure of welfare changes, more specifically, a measure of gains and losses in efficiency. A total benefits, total costs approach[22] will be employed. To outline this measure, consider the demand and supply functions of Figure 3. Consumer demand is a negative function of price, that is, since additional units of a product consumed are assumed to yield successively less satisfaction or utility, consumers are only willing to increase their demand when price falls. Firm supply is a positive function of price, that is, since per unit costs (marginal and average) are assumed to eventually rise as production levels expand, firms are only willing to increase their supply when price rises. All other determinants of demand and supply are assumed to be constant. Now consider a price change, in particular, lower price from P_0 (quantity Q_0) to P_1 (quantity Q_1), in terms of demand moving from point A to B along the average revenue (AR) function, in terms of supply moving from point C to B along the marginal cost (MC) function.

The area Q_0ABQ_1 represents the maximum expenditures (price times quantity) that consumers would be willing to spend to obtain the additional output Q_0Q_1. This area is the total benefits measure[23] of the output change; it is a measure of the satisfaction obtained from the additional consumption. The area Q_0CBQ_1 represents the minimum revenues (marginal cost times quantity) that firms would require to produce the additional output Q_0Q_1. This area is the total costs measure of the output change; it measures the resource costs associated with the additional production. Finally, evaluation of the efficiency (welfare) impacts of the price change is now possible, merely subtract total costs from total benefits and examine whether the output change results in a net benefit, or a net cost to society. In this case, benefits (area Q_0ABQ_1) exceed costs (area Q_0CBQ_1), resulting in a net efficiency gain of area ABC.

At this point, one must stress that the above illustration assumes no distortions (inefficiencies) exist elsewhere in the economy[24] and that equity impacts have not been considered.[25] Nevertheless, the benefits/costs measure, while deceptively simple, will prove to be a surprisingly powerful technique of analysis.

Figure 3

A MEASURE OF EFFICIENCY CHANGES (ILLUSTRATION)



C. Rationales

To examine the numerous and at times conflicting objectives of public enterprise, attention is now given to the rationales for government intervention. The following rationales, however, should be viewed as necessary, not always sufficient conditions for public sector involvement.[26]

(i) Market Failure

To economists, the most rigorous and well developed rationale for intervention consists of market failure (externality) arguments. As discussed, perfectly competitive structures in general equilibrium allow maximum efficiency to be achieved. That is, given resource and income endowments, consumers maximize their individual welfares or real incomes, while firms in their pursuit of profit produce maximum outputs with the least input costs. Market failures occur whenever one or more circumstances exist to prevent the attainment of maximum efficiency.[27] In terms of our prior efficiency measure, opportunities exist to rearrange resource use in either production or consumption so as to allow benefit increases to exceed cost increases, thereby yielding a net gain to society. Three classic cases[28] giving rise to market inefficiency will be presented, namely, externalities involving technology, ownership/property rights, and public goods.

(a) Technological Externalities

Technological externalities are the most frequently cited argument supporting intervention within the utilities sector. They provide the rationale for either public sector enterprise or private sector regulation in such areas as water, electricity, gas, and a number of communication and transportation modes.

Technological externalities, often referred to as the natural monopolies case, possess two basic characteristics. First, on the supply side, production processes[29] give rise to a range of increasing returns to scale; if all inputs were doubled for example, output would more than double. Therefore, if not offset by rising input prices, such processes will possess a range of decreasing average costs as output expands (economies of scale). Second, on the demand side, total market demand is of insufficient size to support the presence of many efficiently functioning firms, firms operating with relatively low average costs of production.[30]

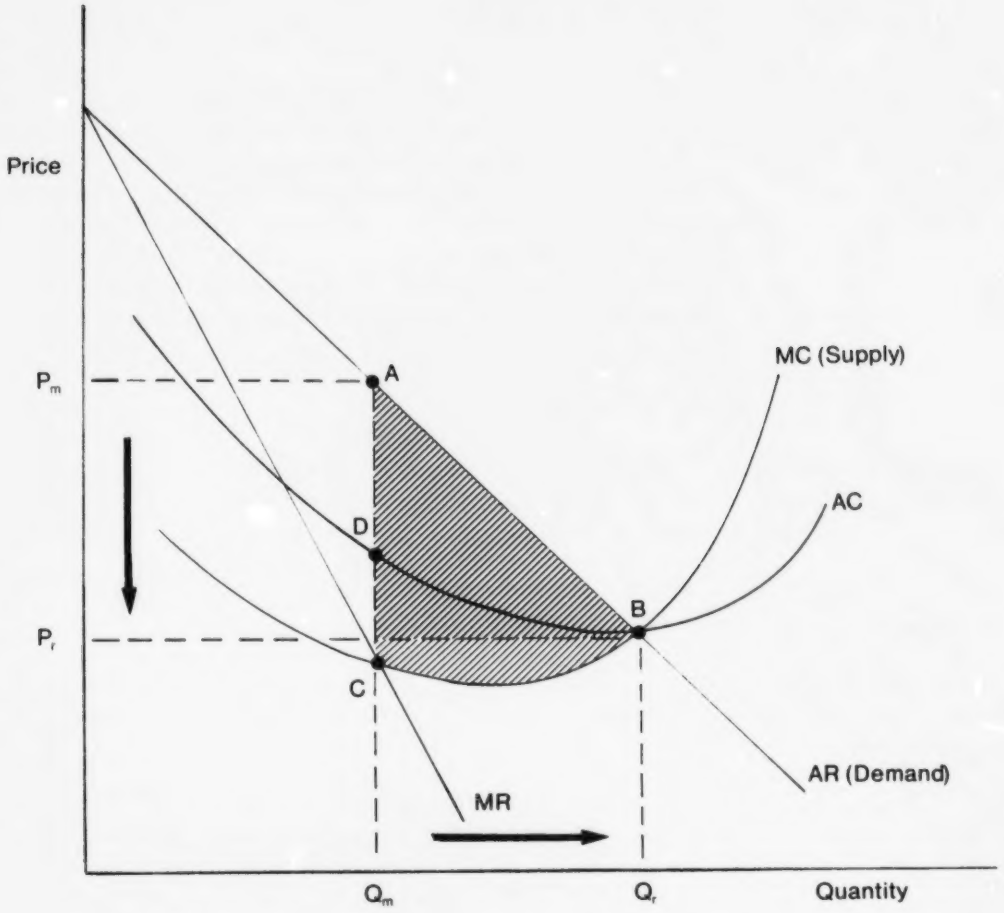
The above market conditions would suggest that if maximum efficiency is to be achieved, then a single firm industry, a monopoly, would best exploit the economies of scale present, that is, to supply output at the lowest possible average cost of production. However, an offsetting problem may be present. Without the constraints of competition, the monopolist now possesses the market power to earn excess profits, profits in excess of opportunity costs, and as a result, price and output policies may be adopted which generate inefficient, rather than efficient resource use.

Figure 4 illustrates the natural monopolies case. In the presence of declining costs and limited market demand, the single firm industry will maximize profits at output (Q_m) and price (P_m).[31] To demonstrate that this solution is suboptimal, employ the measure of efficiency changes and consider the impact of a regulatory policy which forces the price (P_r) and output (Q_r) upon the monopolist. The movement from point A to B results in a benefit increase of area Q_mABQ_r, a cost increase of Q_mCBQ_r, and therefore a net efficiency gain to society of area ABC.[32] While this illustration is deliberately simple, perhaps too simple in design, it nevertheless reveals the basics of the technological externalities argument. Intervention is required in order to promote resource use efficiency, as well as the capture of increasing returns to scale.

Technological externalities as a source of monopoly power may be viewed as one special case within the industrial organization literature. While the solutions are much more ambiguous, imperfect competition and inefficient resource use may arise from a variety of market factors, factors ranging from barriers to entry and collusion to imperfect information and uncertainty. In this broader context, antitrust policy emerges as a further policy instrument to limit market failure, while public enterprise and regulation are viewed as guides or standards to improve private sector performance.[33]

Figure 4

TECHNOLOGICAL EXTERNALITIES (ILLUSTRATION)



(b) Ownership/Property Right Externalities

Ownership externalities arise from incomplete accounting of the benefits or costs of economic activity, they occur in both consumption and production. Ownership externalities may alternatively be described in terms of imperfect assignment of property rights. Two forms are usefully identified: external economies and external diseconomies.

External economies occur whenever an activity undertaken by a firm or consumer results in benefits to others which cannct be captured or priced by the emitting party. The benefits flowing from research and development activity are a commonly cited example. In an unconstrained environment, if a cost-saving innovation spreads to non-developer firms at a zero price, then the innovating firm regardless of having incurred the research and development expenses, is only able to recoup benefits to the extent of its own production, benefits arising from the innovation's use elsewhere in the economy remain uncaptured. As a result, at least two effects are probable. First, inventive activity (output) will be discouraged due to the increased risk of not recovering developmental expenses, nor obtaining a return on innovation. Second, firms will become increasingly secretive in an effort to limit diffusion of their technological advances, and thereby, to prolong and more fully capture benefits by way of their own production. In this latter case, resource use inefficiency is also generated due to the limited (or delayed) access to the innovation, and hence, the use of dated technologies by other firms in the economy.

Recognizing such external economies, governments have sought to neutralize their output restricting impacts by assisting in the more complete capture of benefits. Subsidy programs are instituted to offset lost benefits, patent and licensing systems are developed to assign property rights to the innovations, as well as to require compensation payments from users.

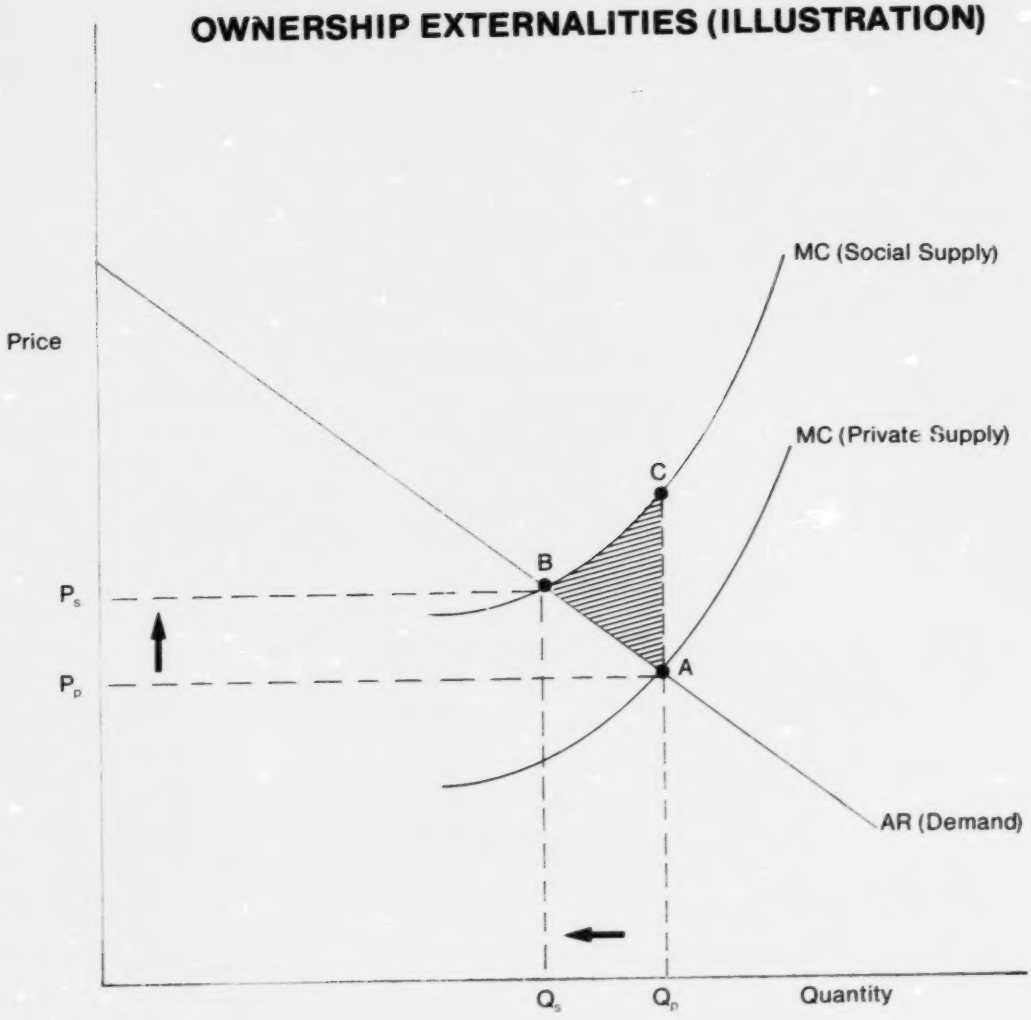
The second form of ownership externality, external diseconomies, arises when an activity generates costs which do not have to be fully borne by the emitting party. Pollution is perhaps the most widely recognized example. When adverse impacts upon the environment are totally or partially ignored, a firm's private costs of production are less than its true social costs. Other sources of diseconomies involve common property resources (fishing grounds), as well as exhaustible and non-exhaustible resources (oil and timber).[34] For example, fishermen, in their competition for fish harvests, may fail to incorporate the costs of stock depletion upon their future catch-costs and income potential. Similarly, firms in their competition to extract oil may fail to incorporate the costs of lower recovery rates arising from too rapid and uneven depletion of oil field reserves. By failing to price or fully price the resource input, over-production will result with resource rents either fully or partially dissipated.

To illustrate ownership externalities, Figure 5 graphs a simple external diseconomy case. Here, private costs of production are less than true social costs due to the failure to price a resource input, or due to the failure to include indirect environmental costs.[35]. In this example, the unconstrained competitive industry solution[36] would result in a price of P_p and an output of Q_p. To demonstrate the inefficiency of this private sector solution, namely over-production and excessive resource use, examine the impacts of a tax being imposed upon firms at a rate of CA per unit of output. Firm costs now rise to the level of social costs, output falls to Q_s and price rises to P_s. The tax policy[37] by reallocating resources has produced a net efficiency gain to society of area ABC (lost benefits equal area Q_pABQ_s, while cost savings equal area Q_pCBQ_s).

The presence of ownership externalities alone does not imply the need for correction through the public enterprise vehicle. They do suggest, however, that given the existence of Crown corporations and assuming that they operate within environments characterized by externalities, pricing and investment criteria must be cognizant of external economies and diseconomies.[38] Otherwise, public enterprise, if driven solely by private sector evaluations of costs and benefits, will impose similar efficiency losses upon society.[39]

Figure 5

OWNERSHIP EXTERNALITIES (ILLUSTRATION)



(c) Public Goods

Arguments involving public goods provide perhaps the strongest case for intervention. In many respects, public goods may be considered to be another form of ownership externality.[40] They also involve an information problem, a problem of fully accounting for benefits. In this case, however, the source of market inefficiency is traced to two characteristics of consumption: non-rivalness and non-excludability. These properties are then employed to define the notion of public goods.[41]

By non-rivalness, one means joint-consumption, where consumption by one individual does not preclude consumption by another.[42] A walk through the park, the reading of a library book, or the crossing of a bridge does not diminish the ability of others to obtain additional satisfaction from further consumption of these goods and services. In contrast, private goods are rivalous; consumption by one individual precludes consumption by others. A given bottle of scotch, for example, can only be consumed once.

By non-excludability, one means it may be impossible, or at least prohibitively costly to exclude individuals from consuming the product once available. National defense, law enforcement, flood control, and uncongested highway travel are examples of the difficulties of exclusion. In contrast, private goods are excludable. By payment of the market price, exchange of private goods and their assignment for consumption are affected.

If public goods are provided by an unconstrained private sector, inefficient resource use would normally result. In the first instance, the goods would not be produced if firms are unable to obtain a price to cover their costs of production. 'Free-rider' problems are present, the non-exclusion characteristic implies an inability to extract a market price from consumers. In the second instance, even if exclusion were possible, inefficiencies would arise from under-consumption of the goods and services. The non-rivalry characteristic implies that the costs of additional units consumed are zero, therefore, a positive market price would limit consumption and result in less than maximum benefit being derived from output. Accordingly, government intervention, frequently in the form of direct public sector provision, seeks to improve efficiency by ensuring production and optimal use of public goods.

(ii) Equity

While lacking the neutrality of the market failure rationale, economic policy is as much guided by ambiguous notions of equity and distributive justice, as by exact specifications of efficiency. At least two forms of equity rationale may be identified. The first centers on the concept of merit goods, and as such, involves normative public sector decisions which initially impact upon resource allocation and production. The second argument centers on the concepts of economic rent and profit, and as such, involves normative public sector decisions which in the first instance affect income distribution.

Whether rationalized on paternalistic or autocratic grounds, or on the basis of consumers possessing incomplete or erroneous information, governments have not been adverse to altering consumer choices to conform to public sector conceptions of social welfare. More specifically, certain goods are deemed to be particularly desirable (merit goods), while others are viewed as non-desirable, potentially yielding negative utility (non-merit goods). As a result, whether through the use of subsidies or direct provision by line-departments, public policy has supported the production of such items as housing and health care, while at the same time, discouraging the consumption of such products as alcohol and tobacco through the use of tax levies and legal sanctions.

The second and more significant equity rationale involves market intervention to capture or dissipate pure economic profits[43] and rents. The former is associated with product markets, the latter with factor markets broadly defined to include land, labour, capital, and resource inputs. Notwithstanding the difficulties of identification and measurement, both concepts refer to earnings in excess of opportunity cost. Specifically, economic profit refers to earnings in excess of input costs, allowances for risk, and the costs of capital. The analogous concept of economic rent refers to earnings in excess of the returns required to keep factors employed in their present use.

The sources of economic rent and profit may be artificial or real. By artificial, one means socially contrived barriers and collusive behavior designed to limit market entry and competition. In contrast, real sources refer to such factors as the scarcities of nature and the presence of technological externalities.[44] For example, the prior discussion of technological externalities suggested that single firm industries may arise from the presence of increasing returns to scale. Such structures, usually ascribed to a number of utilities, may not only lead to inefficient resource use, but given their local monopoly positions, may also provide opportunities for excess profits to be earned.[45] In this case, the standard normative position of government has been to dissipate such profits, to have utilities employ excess profits to subsidize unprofitable services, and to charge users lower than maximum possible prices.

A further example of more recent import involves the resource sector. Resources are characterized by absolute or relative supply limits and by demands which are largely derived, that is, dependent upon the product demands for which the resources are an input in production. Therefore, given demand growth and supply inelasticity, opportunities exist for windfall rents to be earned by owners and lessees of these resources. On purely normative grounds,[46] governments may seek a share of such rents, intervening by way of taxation, public enterprise, and joint venture activity in such areas as oil, uranium, potash, and timber.[47] However, since users are frequently beyond the jurisdiction of the governments in question, since consumers largely reside outside the boundaries of the resource-based province or country, the emphasis is upon rent capture, rather than dissipation. While not intending to discount concerns with rates of resource extraction and development, public policies have emphasized local interests, maximizing optimal rent capture as opposed to, and generally over-riding, concerns with global efficiency of resource use.

(iii) Development and Stabilization

In terms of growth and development, public sector involvement has been a traditional component of Canadian industrial strategy. Protection of infant industries and rationalization of existing product lines have been advanced on the grounds that economies of scale exist in production, but their capture is constrained by the relatively small size of domestic markets and by the presence of competition from larger, more efficient foreign firms. In other words, the objective was to allow Canadian firms to grow by way of a tariff umbrella, to exploit lower per unit production costs, and thereby, to achieve domestic and international competitiveness after an initial period of protection from foreign competition.[48]

A related, and for present purposes, more germaine thesis centers on the use of public enterprise and joint venture activity to build infrastructures for economic growth. Again, the immature stage of development of the private sector is emphasized. Lacking both the ability to attract capital and to provide entrepreneurial initiative, direct public sector intervention was required to assist in the development of the transportation, communication, and energy supply sectors. A variant of the development argument involves concerns with concentration within strategic sectors, as well as with dependency upon foreign ownership and control.

While more relevant for regulation, stabilization objectives are also a frequently stated motive for intervention within individual markets. In particular, primary industries such as agriculture are characterized by inelastic demands and by unstable, lagged supply functions. As a result, wide fluctuations in price, output, income, and employment are often experienced. To stabilize such markets, various forms of intervention have been attempted. For example, marketing boards provide price supports, producer subsidies, and output restrictions. Other variations on the stabilization rationale are possible. Governments may advance loan guarantees, provide unconditional grants, or initiate takeovers of 'failing' firms in an effort to preserve jobs and employment.

In general, however, such stabilization tactics have been subject to severe criticism.[49] Emphasizing market distortions, arguments vary from contentions that inefficiencies are not only preserved, but also enhanced within the regulated sector (resources are prevented from flowing to more productive use elsewhere in the economy), to arguments which maintain that the choice of intervention technique is itself a further source of inefficiency, being ineffective and more costly relative to other policy instruments, notably taxation and expenditure programming.

(iv) Private Interest Models

All of the preceding arguments for intervention may be termed positive, public interest rationales. Alternative explanations of the process are possible. A growing body of regulation literature suggests that in actual practice intervention is motivated, structured, and controlled so as to maximize the welfare of 'private' interest groups within society. Regulatory impacts are not only said to be unexplainable in terms of public interest theory, but also are said to be an additional distortion within the economy, increasing both inefficiency and inequity.

One of the originating hypotheses in this respect was Stigler's capture theory.[50] Governments and regulatory agencies were considered to be the captives, rather than the initiators of public policy. Regulation, instead of protecting the consumer, is seen as a device to preserve and expand the monopolistic positions of producers, profits as well as the 'quiet life' (certainty). Stressing rent-seeking behavior, generalizations[51] of this basic idea have been extended to other interest groups and sectors within the economy. To illustrate, regulation is said to be supported by politicians so as to attract votes and increase re-election probabilities (to satisfy pressure group activity, to appease the public on issues of general concern), supported by bureaucrats and regulatory authorities so as to provide employment and income (to enlarge domains of responsibility, to provide prestige and power), supported by consumer groups so as to advance narrow interests at the expense of other consumers and producers (to obtain housing subsidies, cross-subsidization of utility services, or energy supplies at below market prices), supported by firms so as to further special interests at a cost to other producers and consumers (to obtain subsidies, tax concessions, exclusive monopoly rights, or protection from foreign competition), finally, supported by unregulated sectors, by accountants, lawyers, and academics since the regulatory process utilizes their services and thereby provides employment and income.[52]

Such theories may be partially discounted for the narrowness of their motivational assumptions, also, for their failure to account for the complete spectrum of intervention within the economy.[53] However, in spite of these criticisms, private interest models have provided a further perspective and explanation as to the reasons for regulatory failure. Such analyses have also lead to positive suggestions for improvement: devices to balance pressure group activity, to increase information disclosure as to regulatory impacts, and to strengthen the role of independent reviews and evaluations. In this context, their recommendations are not only applicable to regulation, but in many cases may also be extended to public enterprises, to increase their accountability and performance.

4. CONCLUDING STATEMENT (THE ROLE FOR PUBLIC ENTERPRISE AND THE ISSUES OF INDEPENDENCE, CONTROL, AND ACCOUNTABILITY)

Recognizing that consensus is unlikely even among economists on such narrow issues as efficiency, let alone agreement when the decision-group expands to include non-economists and when the issues enlarge to include equity, any conclusion, given the subject matter of this paper, will necessarily contain a degree of subjectivity and normative evaluation. This warning aside, brief comments will be provided on the role for public enterprise and on the related issues of independence, control, and accountability.

As developed, there are no unambiguous dividing lines or criteria which warrant or necessitate public enterprise over private enterprise. Rather, there are economic rationales for public sector intervention, not for the specific use of public enterprise per se. These rationales progress from arguments of market failure and equity, to arguments of development and stabilization. The weights attached to each rationale are unlikely to be equal, constant through time, nor identical across countries or within jurisdictions of a given country. The scope (extent) of public sector intervention within the economy remains a normative evaluation of economic, as well as non-economic parameters.

Furthermore, the secondary question of instrument choice, the selection and application of a precise policy tool to pursue a given objective(s), is also not without ambiguity. While economics may suggest the use of an efficiency criterion (choose the policy which is not only effective, but which is also least costly and intrusive upon the economy), such a policy approach frequently fails to incorporate constraints inherent in the decision-making process. For example, relative to regulation and public enterprise, a system of taxation and subsidization may be a more efficient vehicle for

combating market failure. However, providing public monies to polluting firms to correct their incomplete specification of costs, or providing subsidies to large corporations to supply goods and services in situations where revenues do not cover costs, or providing funding to enable production in the presence of declining costs and limited market demand, may yield efficient solutions, but may also fail to meet equity considerations (real or apparent redistributions of income) or political considerations (re-election probabilities). Also, to what extent is the choice of intervention technique a function of the 'gaming' environment in which governments operate, constrained by their partially adversial relationships with the private sector and with other levels of government (provincial, federal, and foreign)? Institutional rigidities (constitutional interpretation, federal-provincial agreements), policy choices by other governments, and the ability of the private sector to shift or neutralize intended policy impacts, all contribute to the use of 'second-best' policy choices.

Recognition that the decision as to scope and form of intervention ultimately resides within the political arena, with Parliament (broadly defined) as the representative of the public interest, has naturally led to concerns with policy performance, most recently and specifically to concerns with the independence, control, and accountability of both private sector regulation and public sector enterprise.

All three concepts (independence, control, and accountability) by themselves connote positive attributes. Unfortunately, when considered simultaneously, they are frequently in conflict. A certain degree of independence for public enterprise is said to possess many advantages: to enable boards of directors and senior management the opportunity to utilize and to develop their sector-specific expertise so as to operate Crowns efficiently, to exploit market opportunities, and to be innovative within the industry. Independence is also necessary to shelter public enterprise from governmental interference of a purely 'political' character (while eluding precise definition, one means activities which promote greater private, as opposed to public interest).

Conversely, since Crowns are by definition public corporations, utilizing public finances and/or goodwill, an element of control (responsibility) to the government 'of the day' is also in order. Control is required to ensure that public enterprises pursue policies consistent with their mandates, as well as consistent with the public interest objectives of government. Furthermore, to limit cross-purpose impacts, control also facilitates coordination of the financing and operating decisions among Crown corporations.

A further dimension involves accountability, a point frequently merged or confused with the issue of control. Here, accountability is employed in a narrow sense. It refers to concerns that public enterprises (and hence, governments) provide maximum returns (acknowledging monetary, as well as non-monetary benefits) on public resources employed within the Crown sector. Even if an adequate balance were struck between independence and control, accountability (performance) does not necessarily follow, or more correctly, it does not necessarily follow that Crown performance is capable of evaluation as to its consistency with the public interest.

As a result, proposals for reforming regulation and public enterprise have tended to concentrate at both ends of the spectrum. Some seek greater independence, while others aim for greater control. A common objective, however, is sought: greater accountability, improved performance.

Reforms which seek to place a greater distance between governments and public enterprises are consistent with the original (and dated) American model of regulation, and to a lesser degree, with the original (and dated) Canadian government approach to federal Crown corporations and regulatory agencies. Proposals, such as limiting cabinet overrides, or limiting the influence of ministers upon boards of directors, or establishing review agencies with powers to approve rate structures and revenue requirements, all stress the primacy of independence.

However, such reform approaches must address at least two fundamental issues. The first involves political processes and responsibility. If one is to continue to adopt a system of ministerial responsibility, where Crowns report to rather than through ministers, can one expect cabinet to continue to accept such responsibility, and at the same time a limitation upon their ability to influence Crown behavior? The independence theory assumes sufficient control can be exercised through appointments, directives, and specifications of Crown objectives. More fundamentally, experience suggests that mechanisms would be introduced to reduce or deflect Crown responsibility. Review agencies, in part,

perform such a function. Does one seek to limit control, to insulate governments from the activities and responsibilities for public enterprises, or to allow a greater latitude on the part of Crown management to interpret the public interest?

The second issue involves past experience. The disenchantment within the United States with regulation, and within the Canadian government with federal Crowns and regulatory agencies, provides indirect (admittedly ad hoc) evidence as to the success of the independence school of thought. Indeed, this brings one full-circle to proposals for greater control, as well as to proposals for deregulation and privatization. Criticisms that review agencies have been costly and ineffective, that public enterprises have adopted policies inconsistent with government objectives, and that suboptimal performance results from the layers of conflicting control, have led to proposals for greater government involvement. Improved control is sought by suggestions for greater ministerial review, by proposals to more extensively expose Crowns to the financing, planning, and evaluation screens of the Department of Finance and Treasury Board.

However, similar to the independence approach, proposals for increased control may not generate improved performance. Problems of undue interference re-emerge, also, Crown corporations may lose a number of their independence advantages (speed and quality of decision-making may be retarded by the bureaucratic process), further, processes within government departments may be substandard in a performance sense, and thereby impart no greater accountability upon public enterprises.

A third approach for reform is possible and is gathering increasing attention, namely, attempts to affect accountability processes directly. Proposals which seek to increase information disclosure or provide for review agencies (with non-government appointment, non-binding powers, providing cost-benefit analyses of major Crown policies, frequently reporting directly to Crown Committees of the Legislature) represent an attempt to place the control and independence issues in a cooperative, rather than combative framework. In other words, if cabinet ministers are aware that their policies and Crown sector operations are to be subjected to meaningful scrutiny, which in turn would reflect upon Crown management, a greater similarity of interests may be accommodated among governing party, Crown executives, and the public interest. In general, such approaches seek neither to limit control or independence, nor concern themselves with the minutiae of reform detail. If sufficient incentives are provided by way of re-election uncertainty, both governments and public enterprises may develop or put in place mechanisms for improved performance. Finally, if such information and review mechanisms provide balanced evaluations, less radical swings in policy are possible (whether it be continuance or further expansion of the public sector into areas providing an inadequate 'public interest' return).

5. FOOTNOTES

[1]Statics refer to the analysis of equilibrium within economic models, most frequently, to examine states where there are no tendencies for change in the values of the interrelated variables. Dynamics refer to the analysis of disequilibrium states; time is allowed to proceed so as to examine the adjustment paths of changing variable values, as well as to examine whether equilibrium will re-emerge.

[2]See Hartle (1979).

[3]Conventionally defined, normative statements concern 'what ought to be', while positive statements concern 'what is, was, or will be'. An example of the former would be 'governments ought to redistribute income to the poor', an example of the latter would be 'lump-sum transfers are the most efficient vehicle for redistributing income'. Positive statements are said to involve questions of fact and empirical evidence, while normative statements involve value judgements, and as such, are bounded in notions of philosophy, religion, law, politics, economics, et cetera. This theoretical distinction does not imply that economic analysis cannot be applied to normative issues. Rather, it can contribute to decision-making by delineating direct (and indirect) costs and benefits of normative policies, it can specify alternatives, as well as draw out implicit assumptions and impacts of given policy proposals. Economic analysis cannot, however, evaluate the correctness of the 'ought to' value judgements.

[4]Musgrave (1959).

[5]Economics frequently employs the term discrimination, for example, discriminatory pricing and taxation structures. The term, despite popular usage, carries no necessary 'just' or 'unjust' connotation. It simply means differential treatment on the basis of some identifiable characteristic, such as, income class, type of consumer, or amount purchased.

[6]Leibenstein (1966).

[7]See Ferguson (1969).

[8]Section 3.C develops the market failure, externality arguments.

[9]Perfect competition is a descriptive term. It refers to factor and product markets possessing the following characteristics: individual demands and supplies are of insignificant relative size such that no consumer or firm can individually influence market price, products sold within each market are homogeneous (perfect substitutes for each other), labour and capital are perfectly mobile across markets, finally, certainty and perfect information exist for all consumers and firms.

The following behavioral hypotheses are normally assumed: consumers seek to maximize their individual preferences (utility or welfare), while firms seek to maximize their long run profits (market values).

[10]Footnote 27 outlines the requirements for Pareto optimality, while Section 3.B develops a measure of efficiency changes.

[11]See Vernon (1972) and Scherer (1980).

[12]Non-efficiency concerns may also extend to normative decisions which initially impact upon resource use, allocation and production as opposed to income distribution. See Section 3.C for a discussion of the 'merit' goods concept.

[13]Unless one is prepared to assert that income distribution is an irrelevant component of society's preferences, or assume that the welfare (purchasing power) of a given dollar is identical for both losers and gainers regardless of any differences in their incomes or wealth levels, or finally, assume that compensation to losers is both possible and required.

[14]This does not imply that the use of cost-benefit and cost-effectiveness analysis or the application of pricing and investment criteria are without controversy. See Mishan (1982) for a discussion of the proper scope of cost-benefit analysis, of whether evaluations be attempted of equity impacts, as well as efficiency impacts. Also see footnote 33 for a brief discussion of pricing/rate structure criteria and rate base/rate of return criteria, as well as footnote 39 for a brief discussion of the relevance of 'second-best' theory.

[15]See Nicholson (1979) and Hartle (1979).

[16]See Trebilcock, Hartle, Prichard and Dewees (1982).

[17]Statistics Canada (72-004, 72-007).

Following this definition, many Crown corporations are excluded from Statistics Canada's data on public enterprise, for example, Crown Investments Corporation of Saskatchewan, further, some non-Crown organizational forms are included, for example, Liquor Boards.

[18]See Wilcox and Shepherd (1975), and Green (1980).

[19]Employment data was chosen simply because it was the most up-to-date statistic available.

[20]If one examines total public sector employment at all levels (federal, provincial, and municipal), Saskatchewan's statistic (fourteen per cent) is equal to the all-province average with only three other provinces possessing lower percentage shares.

[21]A third hypothesis is possible. Namely, Saskatchewan's government has been more successful in hiding civil service employment relative to other provinces, and hence, these employees have not been identified/included in the Statistics Canada data. Examination of Statistic Canada's definition of employees would appear to preclude this explanation, that is, they include all payroll employees whether permanent or temporary, full-time or part-time.

[22]For a rigorous development of the total benefits, total costs approach and the consumer's surplus, producer's surplus approach as equivalent measures of efficiency change, see Boadway (1979).

[23]Strictly defined, the benefits/costs approach is an approximate measure of efficiency changes. By employing normal demand and supply curves, as opposed to unobservable compensated functions, income as well as substitution effects are included.

[24]Impacts upon expenditure and cost changes in other industries are assumed equal and therefore cancel.

[25]More correctly, the analysis follows the convention of treating the worth of a dollar benefit or cost as identical across all individuals, or alternatively, follows the potential Pareto improvement criterion: where gainers could theoretically compensate losers, thereby allowing an improvement in social welfare.

[26]For example, the rationale is insufficient if intervention by government generates greater costs or less benefits relative to an unconstrained market environment. This argument is developed by way of 'second-best' theory, see footnote 39.

[27]Pareto efficiency is more conventionally expressed in terms of three conditions: consumption or exchange equilibrium requires equal marginal rates of substitution ($MRS = MU_x/MU_y = P_x/P_y$) for any pair of consumers for any pair of goods, production equilibrium requires equal marginal rates of technical substitution ($MRTS = MP_l/MP_k = w/r$) for any pair of firms for any pair of factors, alternatively expressed in terms of marginal rates of transformation ($MRT = MC_x/MC_y = P_x/P_y$), finally, joint equilibrium requires marginal rates of substitution to equal marginal rates of transformation ($MRS = MRT$).

[28]This listing is not exhaustive of market failure sources, others include risk and uncertainty, as well as tax and expenditure distortions of government.

[29]The technologies are typically capital intensive and subject to investment indivisibilities.

[30]For a discussion of factors (technological change, demand growth, and inflation) eroding the natural monopolies rationale for intervention, see Helliwell (1978). For a discussion of the multi-product firm as an extension of the natural monopolies rationale, where production complementarities allow a vector of commodities to be produced most efficiently by a single firm (economies of scope), see Baumol, Bailey, and Willig (1977), and Joskow and Noll (1977).

[31]Assuming well-behaved second and third derivatives, profit maximization occurs when marginal revenue (MR) equals marginal cost (MC). That is, since total profits equal total revenues minus total costs, profits will rise as output expands whenever the revenue from an additional unit sold (MR) exceeds the cost of the additional unit produced (MC), therefore, profits will be maximized when output is expanded to the point at which MC = MR.

The intuitive appeal of the MC = MR profit maximizing condition may be increased by demonstrating its consistency, under certain conditions, with mark-up pricing models, also referred to as full-cost or average-cost pricing models. That is, given the mathematical relationship between marginal and average functions, in this case, $MR = P(1 + 1/e)$, and

assuming costs to be constant, AC = MC, one can substitute for MC and MR in the MC = MR condition to obtain AC = P(1 + 1/e), rearrange to obtain P = AC [e/(1 + e)], and finally, since 'e' is negative and greater than one in absolute value over the relevant range of production, the term e/(1+e), is greater than one and equals the mark-up. Therefore, the profit maximizing condition of MC = MR yields the expression P = AC (1 + % mark-up). Price is determined by average costs plus a percentage mark-up, in other words, an equivalent pricing approach frequently considered to be more 'realistic'.

[32]Since normal profits are included in the average cost function, this regulatory policy has also reduced excess profits from their former level of AD per unit of output (average revenue less average cost) to a zero value. Later discussions will more fully develop the monopoly rent issue.

[33]The performance of regulation and ownership is not merely a function of the effectiveness of regulators to regulate and of managers to manage, it is also a function of the specific economic criteria guiding the attainment of public sector objectives. This footnote briefly discusses two major, non-exclusive approaches: pricing/rate structure criteria, and rate base/rate of return criteria. Both approaches are largely driven by a market failures rationale; they primarily aim at re-establishing Pareto optimal efficiency. While the following discussion cannot exhaust all problems and wrinkles associated with public enterprise and regulation, it will serve to emphasize that even within a narrow efficiency framework, the choice of operational criteria is not without difficulty [excellent surveys may be found in Phillips (1969), Kahn (1970), and Wilcox and Shepherd (1975)]. Furthermore, if one allows for objectives of social welfare, stabilization, and development, tradeoff considerations emerge. In spite of developments within normative theory and the use of social discounting and cost-benefit analysis, judgements must be made between efficiency losses versus equity gains.

(i) Pricing/Rate Structure Criteria:

Historically, marginal cost has been the most prevalent criteria for the establishment of pricing/rate structures, that is, to constrain regulated firms and public enterprises to perfectly competitive solutions. Unfortunately, a host of problems cloud the application of marginal cost pricing. In terms of practice, how will marginal costs be identified, how will risk and returns to capital be accounted, how will variations in demand (peak loads) be priced? In terms of theory, marginal cost pricing need not eliminate economic rent, nor guarantee the full coverage of costs; also, given tax and capacity constraints, marginal cost pricing may not efficiently allocate resources and output.

To illustrate, consider the case where average costs decline in the range of market demand (see Figure 6). If marginal cost pricing is adopted, losses of AB per unit of output are sustained. As a result, alternative or supplemental criteria are required. Average cost pricing could be applied (point C). Firm survival would be assured, but only at the cost of resource inefficiencies (area CBD measures the excess of reduced total benefits over total costs). Alternatively, marginal cost solutions could be maintained if governments provided per unit subsidies equaling AB. However, subsidization requires funding, and hence, distortions may reappear by way of taxation. Price discrimination represents a further policy alternative, that is, to allow firms to segment markets on the basis of amounts purchased and/or type of consumer, and therefore, to obtain a weighted average user price sufficient to cover costs. In spite of engrained biases against its use, price discrimination may be an optimal departure from marginal cost pricing. It may permit minimum welfare losses [see Baumol and Bradford (1970)].

(ii) Rate Base/Rate of Return Criteria:

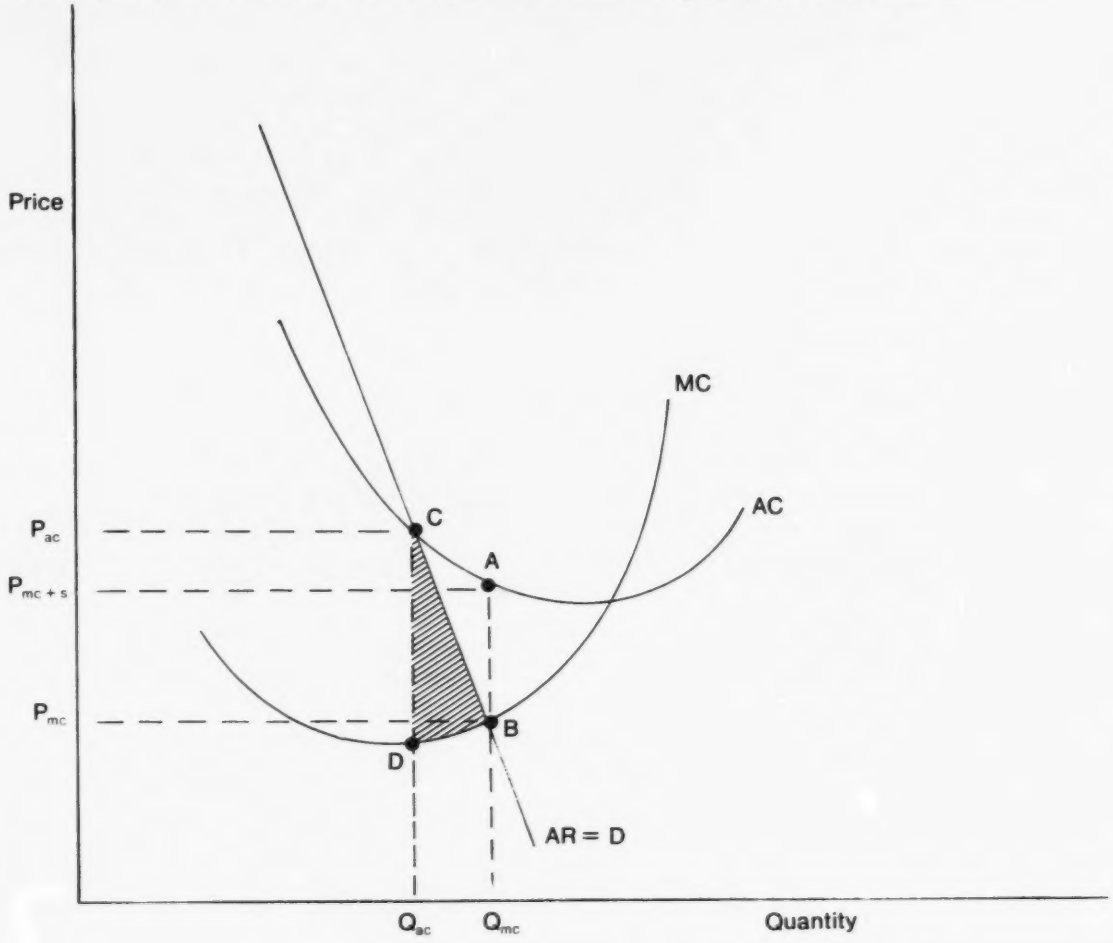
The rate base/rate of return approach has the potential advantage of limiting the required scope of regulation; also like average cost pricing, it allows full coverage of costs. However, definitive statements as to resource efficiency impacts are not possible.

Simply presented, this approach concentrates upon determining the allowable level of revenue generation (R), where:

$$R = O + (A - D)r$$

Figure 6

PRICING/RATE STRUCTURE CRITERIA (ILLUSTRATION)



Three decisions are required. First, firm operating costs (O) must be defined. Second, the rate base, normally depreciated assets (A − D) must be estimated. Finally, an 'acceptable' rate of return (r) on assets must be determined, normally a weighted average cost of capital on debt and equity is employed.

Again, a number of practical problems are raised by this form of regulation. What items are to be included in operating costs and the rate base, what method of depreciation will be adopted, will asset values be accounted on the basis of historical costs or will attempts be made to estimate current replacement costs? Rate of return estimates pose similar difficulties. Capital attraction and comparability criteria are not unambiguous guides for determining the costs of capital. For example, is it appropriate to require rates of return to attract capital in situations where over-expansion of capacity is present, or when industry demand is declining through time? Similarly, even if rates of return on efficient, comparable risk enterprises can be identified, is it appropriate to provide an identical return when identical performance is not demonstrated? Furthermore, in the case of public enterprise, equity considerations may warrant departures from market-based criteria, opportunity cost need not determine the rate of return on social capital.

Two of the more important theoretical issues associated with rate base approaches involve X-inefficiency and Averch-Johnson (1962) effects. By guaranteeing certain rates of return, firms are neither forced, nor provided with incentives to be cost-efficient. Internal inefficiences (X-inefficiency) may arise from the failure to minimize input prices, from excessive labour and management costs, as well as from use of dated technologies. A related argument is presented by Averch and Johnson. They contend that allowable rates of return, while less than monopoly returns, generally exceed the competitive costs of capital. As a result, capital is under-priced and investment decisions will be biased toward capital-intensive processes. Furthermore, excess profits may not only be employed to expand the asset rate base, and hence inflate revenue requirements, but also may be employed to finance (subsidize) firm expansion into unregulated markets.

[34]The former refers to resources which are limited in supply and treated as free inputs in production; the latter also involves supply scarcities, but ownership or property rights to the resources have been assigned.

[35]For simplicity, the excluded costs are assumed to be invariant with output levels, and therefore, the social marginal cost curve is a constant distance above the private marginal cost curve.

[36]Within competitively structured industries, firms are price-takers and therefore unable to separate marginal from average revenue functions. Profit maximization occurs when MC = MR = AR = P.

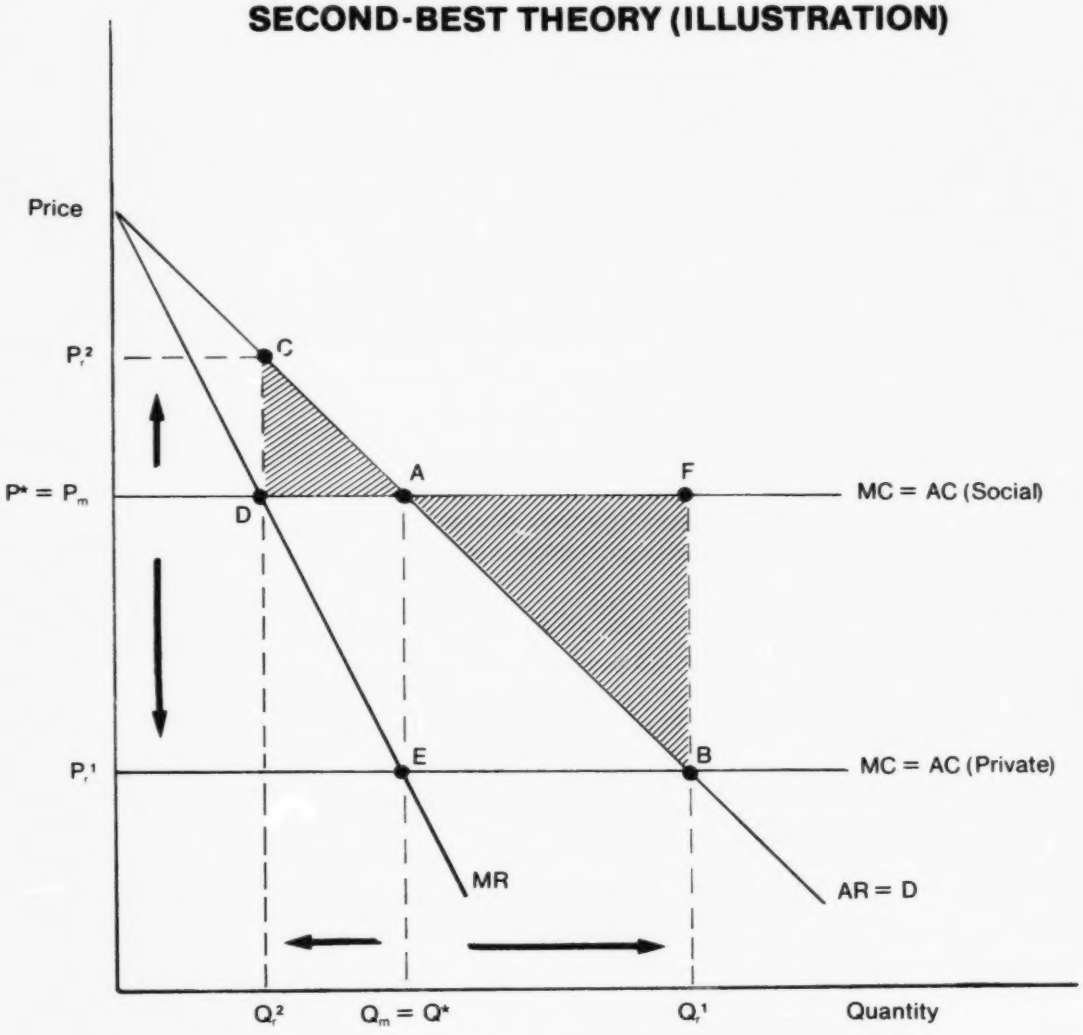
[37]Alternative devices for correcting externalities are possible. Efficiency would also occur if firms were provided with per unit subsidies equaling CA for production levels below Q_p. Similarly, under certain conditions, assigning damage liabilities or property rights and requiring compensation or relying upon bargaining would also improve resource use efficiency. The equity impacts (distribution of gains and losses) of these various policies would, however, differ. For a discussion of these issues, see Coase (1960).

[38]Stronger statements, such as, public enterprises should neutralize diseconomies, are not possible. As will be seen, it is partially a function of equity considerations, in particular, how the gains and losses from a more efficient allocation of resources would distribute not only across the population, but also across provinces and countries.

[39]In spite of its applicability and powerful policy implications, second-best theory [Lipsey and Lancaster (1956-1957)] continues to be undervalued in the regulation and public ownership literature. While the issues discussed thus far may appear sufficient to illustrate the frustrating complexities which public policy must confront, second-best theory adds a further dimension to the problem. More specifically, even if one were only to accept the market failure rationale for intervention, second-best theory suggests that piecemeal policy attempts to re-establish Pareto optimality (to remove externalities) may fail to improve welfare. Imposing marginal cost-pricing, for example, may result in increased losses, rather than gains in efficiency.

Figure 7

SECOND-BEST THEORY (ILLUSTRATION)



While normally presented mathematically and in terms of interactions among sectors, the following example, admittedly constructed as an extreme case, will serve to illustrate the policy significance of second-best theory. Consider two externalities existing simultaneously: a monopoly firm (technological externality) which pollutes the environment (property right externality, external diseconomy), also for simplicity, assume constant costs over the relevant ranges of output (see Figure 7).

In an unconstrained, unregulated environment, the polluting monopolist would produce output Q_m at price P_m. If public policy is able to remove only the monopoly externality, a price of P_r^1 and output Q_r^1 would prevail (an apparently desirable result, that is, price falls and output expands in line with the removal of a technological externality). If public policy is able to remove only the pollution externality, a price of P_r^2 and output Q_r^2 would prevail (again, an apparently desirable result, that is, price rises and output contracts in line with removal of an external diseconomy). Do such piecemeal policies result in a net welfare gain? Assume a first-best solution is now possible. If both externalities are removed, the efficienct solution is P* and Q*, a result identical to the price and output values holding in the original unconstrained environment. Each piecemeal policy by itself would result in losses of efficiency (the monopoly policy generating a net cost of area AFB, the pollution policy imposing costs of area ADC).

Therefore, policies which seek to regulate private firms or guide public enterprises must not only be driven by the original rationale giving rise to the intervention, but also must be cognizant of multiple distortions and of interaction effects with other sectors. Otherwise, failure to modify regulatory policies in light of second-best considerations will impose costs, rather than benefits upon society [see Davis and Winston (1965), Rees (1976), and Boadway (1979) for illustrations of second-best criteria and for illustrations of where first-best (Pareto) criteria may continue to hold].

[40]See Haveman (1976).

[41]A causation problem is frequently present in discussions of public goods. Are the characteristics of non-rivalness and non-excludability peculiar to the goods, thereby giving rise to their public finance and provision, or alternatively, are these properties imparted upon the goods only after the decision to publicly finance and provide has been made?

[42]The simplest public good case is assumed, that is, uncongestion in use.

[43]Alternatively referred to as excess or monopoly profits.

[44]Identification problems include the difficulties of distinguishing from other sources of excess profit, such as, the initial returns to innovation and entrepreneurship, as well as, the excess returns associated with short-run market disequilibrium.

[45]See the section on technological externalities, in particular, Figure 4 and footnote 32 for an example and graphical representation of excess profits.

[46]This statement is not intended to suggest that other non-equity rationales are invalid, nor that the process solely involves transferring private rents to the public sector. On institutional or legal grounds, provincial governments effectively possess private property rights, an ability to exact royalty-type payments from Crown and freehold resource use; further, the federal government by way of its powers of direct taxation may also exact similar resource payments.

On efficiency grounds, at least two arguments for rent sharing are present. The first involves a benefits tax argument. The various levels of government provide inputs which facilitate the generation of resource revenues. Rent sharing serves to cover the infrastructure costs of such items as transportation, utilities, and education, that is, to cover the costs of benefits received by resource companies and their labour forces. The second argument centers on the costs imposed upon the public sector due to resource exhaustibility. In particular, resource depletion and plant shutdown impose relocation and depopulation costs upon government, as well as costs associated with premature abandonment and inefficient use of social capital. See Scott (1976).

[47] For an examination of the impacts of the potash reserve tax and of the constraints underlying the Saskatchewan government's entry into the industry, see Anderson (1981). A case study of Saskatchewan's uranium royalty is also provided by Anderson and Barnett (1982).

[48] See Eastman and Stykolt (1967), and the Canada in the Atlantic Economy Series, University of Toronto Press (1968-1970).

[49] See the general reports, working papers, and technical reports of the Regulation Reference Series, Economic Council of Canada (1978-1982).

[50] Stigler (1971).

[51] See Tullock (1975), Posner (1975), Peltzman (1976), Trebilcock, Waverman and Prichard (1978), Hartle (1979), and Economic Council of Canada (1981).

[52] These illustrations are drawn from Trebilcock, Waverman and Prichard (1978).

[53] See Cairns (1980) and Arthurs (1981).

APPENDIX D

SELECTED BIBLIOGRAPHY

A. BOOKS, ARTICLES, AND MONOGRAPHS:

Alain, J. M., "Public Enterprises: A Bibliography", in Gelinas, A. (Editor), **Public Enterprise and the Public Interest,** Proceedings of an International Seminar, 215-266, Toronto: Institute of Public Administration of Canada, 1978.

Anderson, D. L., **The Role of Mineral Taxation in Industry/Government Conflict,** Kingston: Centre for Resource Studies, 1981.

Anderson, D. L. and Barnett, D. W., "Taxation of Uranium Mining Ventures in Saskatchewan: A Policy Assessment", Unpublished Paper, University of Regina, August, 1982, 1-35.

Arthurs, H. W., "Comments and Reservations", in Economic Council of Canada, **Reforming Regulation 1981,** 141-142, Ottawa: Supply and Services Canada, 1981.

Ashley, C. A. and Smails, R. G. H., **Canadian Crown Corporations: Some Aspects of Their Administration and Control,** Toronto: Macmillan, 1965.

Averch, H. and Johnson, L. L., "Behavior of the Firm Under Regulatory Constraint", **American Economic Review,** December, 1962, 1052-1069.

Balls, H. R., "Improving Performance of Public Enterprise Through Financial Management and Control", **Canadian Public Administration,** 13, Spring, 1970, 100-123.

Barnett, D. W. and Anderson, D. L., "A Comparative Taxation Study of Uranium Mining in Australia and Canada", Unpublished Paper, University of Regina, August, 1982, 1-35.

Bator, F. M., "The Anatomy of Market Failure", **Quarterly Journal of Economics,** 72, August, 1958, 351-379.

Baumol, W. J., "On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry", **American Economic Review,** 67, December, 1977, 809-821.

Baumol, W. J., Bailey, E. E. and Willig, R. D., "Weak Invisible Hand Theorems on the Sustainability of Multi-Product Natural Monopoly", **American Economic Review,** 67, June, 1977, 350-365.

Baumol, W. J. and Bradford, D. J., "Optimal Departures from Marginal Cost Pricing", **American Economic Review,** 60, June, 1970, 265-283.

Blakeney, A. E., "Saskatchewan Crown Corporations", in Friedmann, W. (Editor), **The Public Corporation: A Comparative Symposium,** 93-107, Toronto: Carswell, 1954.

Boadway, R., **Public Sector Economics,** Cambridge: Winthrop, 1979.

Boodhoo, M. J. and Kapur, J. C., **Public Enterprise Management: A Select Bibliography,** London: Commonwealth Secretariat, 1979.

Boyer, M. et al., "The Impact of Regulation: Panel Discussion", **Canadian Public Policy,** 5, Autumn, 1979, 463-492.

Burgess, D. F., "The Social Discount Rate for Canada: Theory and Evidence", **Canadian Public Policy,** 7, Summer, 1981, 383-394.

Cairns, R. D., **Rationales for Regulation,** Technical Report No. 2, Regulation Reference Series, Economic Council of Canada, Ottawa: Supply and Services Canada, 1980.

Campbell, H. F., "Shadow Prices for the Economic Appraisal of Public Sector Expenditures", **Canadian Public Policy,** 7, Summer, 1981, 395-398.

Coase, R. H., "The Problem of Social Cost", **Journal of Law and Economics,** 3, October, 1960, 1-44.

Committee on Crown Corporations, Legislative Assembly of British Columbia, **Fourth Annual Review of Operations,** Vancouver: Government of British Columbia, 1982.

Crommelin, M. and Thompson, A. R. (Editors), **Mineral Leasing as an Instrument of Public Policy,** Vancouver: British Columbia Institute for Policy Analysis, 1977.

Davis, O. A. and Whinston, A. B., "Welfare Economics and the Theory of Second Best", **Review of Economic Studies,** 32, January, 1965, 1-14.

Demsetz, H., "Why Regulate Utilities?", **Journal of Law and Economics,** 11, April, 1968, 55-66.

Denham, R. A., "New Public-Sector Audit Legislation in Canada", **Canadian Public Policy,** 4, Autumn, 1978, 474-488.

Doern, G. B. (Editor), **The Regulatory Process in Canada,** Toronto: Macmillan, 1978.

Due, J. F. and Friedlaender, A. F., **Government Finance: Economics of the Public Sector,** Homewood: Irwin, 1977.

Eastman, H. C. and Stykolt, S., **The Tariff and Competition in Canada,** Toronto: Macmillan, 1967.

Economic Council of Canada, **Reforming Regulation 1981,** Ottawa: Supply and Services Canada, 1981.

Economic Council of Canada, **Regulation Reference: A Preliminary Report to First Ministers,** Ottawa: Supply and Services Canada, 1978.

Economic Council of Canada, **Regulation Reference Series,** Working Papers and Technical Reports, Ottawa: Supply and Services Canada, 1978-1982.

Economic Council of Canada, **Responsible Regulation (Interim Report),** Ottawa: Supply and Services Canada, 1979.

Economic Council of Canada, **Responsible Regulation (Interim Report): Synopsis and Recommendations,** Ottawa: Supply and Services Canada, 1979.

Enemark, T., "A Federal-Provincial Affairs Perspective" (Reforming Regulation), **Canadian Public Policy,** 8, Winter, 1982, 40-44.

Ferguson, C. E., **Microeconomic Theory** (Revised Edition), Homewood: Irwin, 1969.

Friedmann, W. (Editor), **The Public Corporation: A Comparative Symposium,** Toronto: Carswell, 1954.

Gelinas, A. (Editor), **Public Enterprise and the Public Interest,** Proceedings of an International Seminar, Toronto: Institute of Public Administration of Canada, 1978.

Gracey, D., "Public Enterprise in Canada", in Gelinas, A. (Editor), **Public Enterprise and the Public Interest,** Proceedings of an International Seminar, 25-47, Toronto: Institute of Public Administration of Canada, 1978.

Gramlich, E. M., **Benefit-Cost Analysis of Government Programs,** Englewood Cliffs: Prentice-Hall, 1981.

Green, C., **Canadian Industrial Organization and Policy,** Toronto: McGraw-Hill, 1980.

Hartle, D. G., **Public Policy Decision Making and Regulation,** Montreal: Institute for Research on Public Policy, 1979.

Hartle, D. G., "The Report of the Royal Commission on Financial Management and Accountability (The Lambert Report: A Review)", **Canadian Public Policy,** 5, Summer, 1979, 366-382.

Haveman, R. H., **The Economics of the Public Sector** (Second Edition), New York: Wiley, 1976.

Helliwell, J., "Some Emerging Economic Issues in Utility Regulation and Rate-Making", in Stanbury, W. T. (Editor), **Studies on Regulation in Canada,** 113-130, Montreal: Institute for Research on Public Policy, 1978.

Irvine, A. G., "The Delegation of Authority to Crown Corporations", **Canadian Public Administration,** 14, Winter, 1971, 556-579.

Janisch, H. N., "A Consumer Perspective" (Reforming Regulation), **Canadian Public Policy,** 8, Winter, 1982, 28-34.

Jeffrey, B. and Morton, M., "Crown Corporations: Issues for the 80's", Background Paper (BP-54E), Library of Parliament, Ottawa, November, 1982, 1-71.

Jenkins, G. P., "The Public-Sector Discount Rate for Canada: Some Further Observations", **Canadian Public Policy,** 7, Summer, 1981, 399-407.

Joskow, P. L. and Noll, R. G., "Regulation in Theory and in Practice", Presented Paper, **Conference on Public Regulation,** Washington: National Bureau of Economic Research, 1977.

Kahn, A. E., **The Economics of Regulation** (Two Volumes), New York: Wiley, 1970.

Kahn, A. E., "The Graduated Fair Return: Comment", **American Economic Review,** 58, March, 1968, 170-174.

Kane, T. G., **Consumers and the Regulators: Intervention in the Federal Regulatory Process,** Montreal: Institute for Research on Public Policy, 1980.

Koch, J. V., **Industrial Organization and Prices** (Second Edition), Englewood Cliffs: Prentice-Hall, 1980.

Langford, J., "The Identification and Classification of Federal Public Corporations: A Preface to Regime Building", **Canadian Public Administration,** 23, Spring, 1980, 87-89.

Layard, R. (Editor), **Cost-Benefit Analysis,** Middlesex: Penguin, 1972.

Leibenstein, H., "Allocative Efficiency vs. X-Efficiency", **American Economic Review,** 56, June, 1966, 392-415.

Lipsey, R. G. and Lancaster, K., "The General Theory of Second Best", **Review of Economic Studies,** 24, 1956-1957, 11-32.

Lipsey, R. G., Sparks, G. R. and Steiner, P. O., **Economics** (Third Edition), New York: Harper & Row, 1979.

MacAvoy, P. W. (Editor), **The Crisis of the Regulatory Commissions,** New York: Norton, 1970.

MacLean, G. W., **Public Enterprise in Saskatchewan** (Revised Edition), Regina: Crown Investments Corporation of Saskatchewan, 1981.

McQuaid, M. J., **Report of the Commission of Inquiry into the Cost of Electric Power to the Residents of Prince Edward Island,** Charlottetown: Government of Prince Edward Island, 1982.

Mishan, E. J., "The New Controversy about the Rationale of Economic Evaluation", **Journal of Economic Issues,** 16, March, 1982, 29-47.

Moore, A. M., "The Concept of a Nation and Entitlements to Economic Rents", in Scott, A. (Editor), **Natural Resource Revenues: A Test of Federalism,** 240-245, Vancouver: British Columbia Institute for Economic Policy Analysis, 1978.

Moore, A. M., "The Role of Public Enterprise: Comment", in Crommelin, M. and Thompson, A. R. (Editors), **Mineral Leasing as an Instrument of Public Policy,** 174-176, Vancouver: British Columbia Institute for Economic Policy Analysis, 1977.

Musgrave, R. A., **The Theory of Public Finance,** New York: McGraw-Hill, 1959.

Ontario Economic Council, **Government Regulation: Issues and Alternatives,** Toronto: Ontario Economic Council, 1978.

Peltzman, S., "Toward a More General Theory of Regulation", **Journal of Law and Economics,** 19, August, 1976, 211-240.

Perry, D. B., "Government Enterprise", **Canadian Tax Journal,** 17, July-August, 1969, 273-276.

Phillips, A. (Editor), **Promoting Competition in Regulated Markets,** Washington: Brookings Institution, 1975.

Phillips, C. F., **The Economics of Regulation** (Revised Edition), Homewood: Irwin, 1969.

Posner, R. A., "The Social Costs of Monopoly and Regulation", **Journal of Political Economy,** 83, August, 1975, 807-828.

Private Planning Association of Canada, **Canada in the Atlantic Economy Series,** Toronto: University of Toronto Press, 1968-1970.

Privy Council Office, Government of Canada, **Crown Corporations: Direction, Control, Accountability,** Ottawa: Supply and Services Canada, 1977.

Rees, R., **Public Enterprise Economics,** London: Weidenfeld and Nicolson, 1976.

Reid, G. L. and Allen, K., **Nationalized Industries,** Middlesex: Penguin, 1970.

Rivlin, A. M., **New Approaches to Public Decision-Making,** Special Study No. 18, Economic Council of Canada, Ottawa: Supply and Services Canada, 1972.

Royal Commission on Financial Management and Accountability, **Final Report,** Ottawa: Supply and Services Canada, 1979.

Royal Commission on Government Administration (Saskatchewan), **Report,** Regina: Queen's Printer, 1965.

Samuelson, P. A. and Scott, A., **Economics** (Fifth Canadian Edition), Toronto: McGraw-Hill Ryerson, 1980.

Scherer, F. M., **Industrial Market Structure and Economic Performance** (Second Edition), Chicago: Rand McNally, 1980.

Scott, A. (Editor), **Natural Resource Revenues: A Test of Federalism,** Vancouver: British Columbia Institute for Economic Policy Analysis, 1976.

Scott, A., "Who Should Get Natural Resource Revenues", in Scott, A. (Editor), **Natural Resource Revenues: A Test of Federalism,** 1-51, Vancouver: British Columbia Institute for Economic Policy Analysis, 1976.

Shepherd, W. G. (Editor), **Public Enterprise: Economic Analysis of Theory and Practice,** Lexington: Heath, 1976.

Sherman, R., **The Economics of Industry,** Boston: Little, Brown and Company, 1974.

Skeoch, L. A. and McDonald, B. C., **Dynamic Change and Accountability in a Canadian Market Economy,** A Study Prepared for the Department of Consumer and Corporate Affairs, Ottawa: Supply and Services Canada, 1976.

Smith, R. et al., "The Alberta Heritage Savings Trust Fund: An Overview of the Issues", **Canadian Public Policy,** 6 (Supplement), February, 1980, 141-280.

Stanbury, W. T. (Editor), **Government Regulation: Scope, Growth, Process,** Montreal: Institute for Research on Public Policy, 1980.

Stanbury, W. T. (Editor), **Studies on Regulation in Canada,** Montreal: Institute for Research on Public Policy, 1978.

Stigler, G., "The Theory of Economic Regulation", **Bell Journal of Economics and Management Science,** 2, Spring, 1971, 3-21.

Sugden, R. and Williams, A., **The Principles of Practical Cost-Benefit Analysis,** Oxford: Oxford University Press, 1978.

Sumner, M. T., "Benefit-Cost Analysis in Canadian Practice", **Canadian Public Policy,** 6, Spring, 1980, 389-393.

Thibault, J. L., "The Economic Council's Assessment and the Future" (Reforming Regulation), **Canadian Public Policy,** 8, Winter, 1982, 35-39.

Thompson, A. R., "Natural Resource Revenue Sharing: A Dissenting View", in Scott, A. (Editor), **Natural Resource Revenues: A Test of Federalism,** 112-117, Vancouver: British Columbia Institute for Economic Policy Analysis, 1978.

Trebilcock, M. J., Hartle, D. G., Prichard, J. R. S. and Dewees, D. N., **The Choice of Governing Instrument,** A Study Prepared for the Economic Council of Canada, Ottawa: Supply and Services Canada, 1982.

Trebilcock, M. J., Waverman, L. and Prichard, J. R. S., "Markets for Regulation: Implications for Performance Standards and Institutional Design", in Ontario Economic Council, **Government Regulation: Issues and Alternatives,** 11-66, Toronto: Ontario Economic Council, 1978.

Tullock, G., "The Transitional Gains Trap", **Bell Journal of Economics,** 6, Autumn, 1975, 671-678.

Tupper, A. and Doern, G. B. (Editors), **Public Corporations and Public Policy in Canada,** Montreal: Institute for Research on Public Policy, 1981.

Turvey, R., **Economic Analysis and Public Enterprises,** London: Allen and Unwin, 1971.

Turvey, R. (Editor), **Public Enterprise,** Middlesex: Penguin, 1968.

Tussing, A. R., "The Role of Public Enterprise", in Crommelin, M. and Thompson, A. R. (Editors), **Mineral Leasing as an Instrument of Public Policy,** 163-173, Vancouver: British Columbia Institute for Economic Policy Analysis, 1977.

Vernon, J. M., **Market Structure and Industrial Performance: A Review of Statistical Findings,** Boston: Allyn and Bacon, 1972.

Waverman, L., "The Role of Public Enterprise: Comment", in Crommelin, M. and Thompson, A. R. (Editors), **Mineral Leasing as an Instrument of Public Policy,** 177-181, Vancouver: British Columbia Institute for Economic Policy Analysis, 1977.

Webb, M. G., **The Economics of Nationalized Industries,** London: Nelson, 1973.

Wilcox, C. and Shepherd, W. G., **Public Policies Toward Business** (Fifth Edition), Homewood: Irwin, 1975.

B. STATISTICAL REFERENCES:

Canadian Tax Foundation, **The National Finances,** Toronto: Canadian Tax Foundation, Annual Series.

Canadian Tax Foundation, **Provincial and Municipal Finances,** Toronto: Canadian Tax Foundation, Annual Series.

Province of Saskatchewan, **Public Accounts,** Regina, Annual Series.

Statistics Canada, **Canada Year Book** (CS11-402E), Ottawa: Supply and Services Canada, Annual Series.

Statistics Canada, **Federal Government Employment** (72-004), Ottawa: Supply and Services Canada, Quarterly Series.

Statistics Canada, **The Labour Force** (71-001), Ottawa: Supply and Services Canada, Monthly Series.

Statistics Canada, **Local Government Employment** (72-009), Ottawa: Supply and Services Canada, Quarterly Series.

Statistics Canada, **Provincial Government Employment** (72-007), Ottawa: Supply and Services Canada, Quarterly Series.

Statistics Canada, **Quarterly Estimates of Population for Canada and the Provinces** (91-001), Ottawa: Supply and Services Canada, Quarterly Series.

C. ANNUAL REPORTS:

Agricultural Development Corporation of Saskatchewan.

Crown Investments Corporation of Saskatchewan.

FarmStart.

Government Finance Office.

Municipal Financing Corporation of Saskatchewan.

Potash Corporation of Saskatchewan.

Saskatchewan Computer Utility Corporation.

Saskatchewan Crop Insurance Corporation.

Saskatchewan Development Fund Corporation.

Saskatchewan Economic Development Corporation.

Saskatchewan Educational Communications Corporation.

Saskatchewan Forest Products Corporation.

Saskatchewan Fur Marketing Service.

Saskatchewan Government Insurance.

Saskatchewan Government Insurance Office.

Saskatchewan Government Printing Company.

Saskatchewan Grain Car Corporation.

Saskatchewan Housing Corporation.

Saskatchewan Land Bank Commission.

Saskatchewan Minerals.

Saskatchewan Mining Development Corporation.

Saskatchewan Oil and Gas Corporation.

Saskatchewan Power Corporation.

Saskatchewan Telecommunications.

Saskatchewan Trading Corporation.

Saskatchewan Transportation Company.

Saskatchewan Water Supply Board.